National Pollutant Discharge Elimination System
Municipal Separate Storm Sewer System
Permit No. 11-DP-3313 MD0068276
Permit Term: October 9, 2015 to October 8, 2020

Ninth Annual Report
Fiscal Year 2024

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to:
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MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

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Introduction

The Maryland State Highway Administration (SHA) prepared this Annual Report to the Maryland Department of Environment (the MDE) for State fiscal year 2024 (FY24) from July 1, 2023 to June 30, 2024 in accordance with conditions in Part V.A.1 of National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) discharge permit number 11-DP-3313 MD0068276 (referred to hereafter as the "MS4 Permit"). Geographic Information System (GIS) data is provided with this FY24 MS4 Annual Report ("MS4 Geodatabase – Part 1") in accordance with conditions in Part V.A.2 of the MS4 Permit and with the MDE November 2021 draft supplement to its *NPDES MS4 Geodatabase Design and User's Guide (Version 1.2) September 2023 Edits*.

Two supplemental geodatabases are provided with this FY24 MS4 Annual Report. The first ("MS4 Geodatabase – Part 2") reports SHA implementation of inlet cleaning and street sweeping Best Management Practices (BMPs) and the second ("NPDES 2024 Geodatabase") provides the inventory of SHA storm drain infrastructure.

The MDE supplied SHA comments, dated June 21, 2024, related to the FY23 MS4 Annual Report and data submittal. In accordance with conditions in Part V.A.3 of the MS4 Permit, SHA responses addressing the June 21, 2024, the MDE comments are submitted in tandem to this FY24 MS4 Annual Report.

Permit Administration and Legal Authority

The MS4 Permit was administered during FY24 by the SHA Office of Environmental Design (OED) with Ryan Cole, Water Programs Division Chief, serving as the MS4 Permit Manager and liaison to the MDE. In accordance with conditions in Part IV.A of the MS4 Permit, SHA has provided contact information in the *Permit Info* table of the MS4 Geodatabase – Part 1 and an updated organizational chart detailing personnel and groups responsible for major NPDES program tasks in **Appendix A**.

In accordance with conditions in Part IV.B of the MS4 Permit relative to 40 Code of Federal Regulations 122.26, SHA maintained adequate legal authority for compliance with MS4 Permit conditions during the FY24 reporting period and carried out inspections, surveillance, and monitoring procedures necessary to demonstrate compliance with MS4 Permit conditions. The SHA has provided associated information in **Appendices B and C**.

Status of Implementing the Stormwater Management Program

In the following subsections, SHA has provided the status of implementing the components of its stormwater management (SWM) program that are established as MS4 Permit conditions. SWM program components reported in this FY24 MS4 Annual Report in accordance with conditions in Part V.A.1.a of the MS4 Permit include:

- Source Identification
- Stormwater Management
- Erosion and Sediment Control
- Illicit Discharge Detection and Elimination
- Trash and Litter
- Property Management and Maintenance
- Public Education
- Watershed Assessment
- Restoration Plans
- TMDL Compliance
- Assessment of Controls
- Program Funding

Source Identification

During FY24, the SHA Office of Highway Development (OHD) Highway Hydraulics Division (HHD) continued to maintain the inventory of SHA-owned storm drain system that includes conveyances, major outfalls, inlets, and associated drainage areas in accordance with conditions in Part IV.C.1 of the MS4 Permit. The HHD continued to confirm or update the stormwater systems inventory information during permit reviews, as-built document reviews, incidental drainage investigations, SWM facility inspections, outfall inspections, and video pipe inspections. The SHA has reported information for storm drain infrastructure other than outfalls and SWM facilities (a.k.a., upland BMPs) in the supplemental NPDES 2024 Geodatabase provided with this FY24 MS4 Annual Report. During FY24, 505 outfall drainage areas were newly delineated. The SHA built 80 new upland BMPs in FY24 within the MS4 permitted areas. The SHA has provided outfall structure information in the *Outfall* and *Outfall Drainage Area* feature classes, and upland BMP information in the *BMP* and *BMP Drainage Area* feature classes, of the MS4 Geodatabase – Part 1.

The SHA continued working in FY24 to improve its stormwater systems inventory data and processes. This included updates to outfall inspection tools to improve field usability and reporting of illicit discharges for further investigation. Video pipe inspections continued in FY24 for failures in joints, invert corrosion, and other potential damage and were primarily completed using remotely operated robotic pipe crawlers. The SHA piloted use of drone and rudimentary video pipe inspection technology during FY24 to evaluate the relative efficacy of those alternate inspection approaches.

Drones enclosed in cages were used to inspect pipes that were inaccessible to crawlers due to baseflows and high-water levels in the pipes. Low-tech crawlers, made from off-the-shelf remote-control cars and mountable cameras, were also evaluated as an alternative means to obtain lower resolution pipe video that can supplement survey when pipe locations and directions cannot be determined from the surface. This low-tech option captured basic pipe condition data more quickly than a typical crawler. These alternative methods facilitated inspection of a wider range of pipes and the level of detail captured during inspection was better tailored to the original need. As part of these inspections, SHA storm drain inventory continues to be updated both in the field and office.

In accordance with conditions in Part IV.C.2 of the MS4 Permit, SHA has identified industrial sites within SHA right-of-way (ROW) that have the potential to contribute significant pollutants to SHA storm drain systems. These include SHA-owned facilities covered under the NPDES General Permit (number 20-SW) for Discharges from Stormwater Associated with Industrial Activities, but also non-permitted facilities requested by the MDE, such as salt storage areas, parking lots, rest areas, and other highly trafficked or material storage areas. An SHA-owned salt barn, located along Connecticut Avenue in Montgomery County, completed construction in FY24 and has been added to the reported inventory as a new non-permitted industrial facility. Two Park and Ride facilities were removed from the inventory due to the I-95 expansion project and a third Park and Ride facility was removed from SHA reporting because it was identified as belonging to Baltimore City. The SHA has provided location and other information for NPDES 20-SW permitted and non-permitted industrial sites in the *Municipal Facilities* feature class of the MS4 Geodatabase – Part 1. There are no commercial sites located on SHA properties.

As described in Section C.3 of the FY19 MS4 Annual Report, the SHA revised baseline analysis submitted to the MDE in June 2018 included GIS data for impervious surfaces owned by SHA in its MS4 permitted areas. The MDE found it acceptable that this information is not resubmitted, beginning with the FY19 MS4 Annual Report, and SHA has excluded it from subsequent MS4 Annual Report submittals. The SHA has updated the total impervious acres restored during the MS4 Permit term and the total impervious acres planned for restoration activities in the *Impervious Surface* table of the MS4 Geodatabase – Part 1.

Monitoring site locations established to meet conditions described in Part IV.F of the MS4 Permit did not change during FY24. The SHA has provided information for its monitoring sites in the *Monitoring Site* and *Monitoring Drainage Area* feature classes of the MS4 Geodatabase – Part 1.

Information for SHA water quality improvement projects proposed, in construction, or complete through June 30, 2024, is provided in the *BMP*, *AltBMPLine*, and *AltBMPPoly* feature classes and the *Stream Restoration Protocols* table of the MS4 Geodatabase – Part 1. The SHA completed 3 new water quality improvement projects, accepted 1 credit impact replacement project, continued design for 12 new water quality improvement projects during FY24, and added corresponding records to the MS4 Geodatabase – Part 1. Information for inlet cleaning and street sweeping BMPs is provided in the *AltBMPPoly* feature class of the MS4 Geodatabase – Part 2.

Stormwater Management

The SHA continued to comply with State and federal laws and regulations in FY24 regarding SWM and the MDE permit requirements. The SHA also continued to implement the practices established in the 2000 Maryland Stormwater Design Manual and remains in compliance with the SWM Act of 2007 and the revised Chapter 5 of the 2000 Maryland Stormwater Design

Manual by implementing environmental site design to the maximum extent practicable (MEP) for all new development and redevelopment projects.

The OHD Plan Review Division (PRD) is the delegated approving authority for both erosion and sediment control (ESC) and SWM plans for all SHA projects. The PRD submitted progress reports to the MDE during FY24 in accordance with the July 8, 2014, Memorandum of Understanding between SHA and the MDE to designate SHA as an approving authority for ESC and SWM. The PRD continues to coordinate with MDE to update the *PRD Sediment and Stormwater Guidelines and Procedures* as necessary. Additional information can be found in the *SHA Annual Report for Delegation of Sediment and Stormwater Approval Authority* submitted to the MDE on October 9, 2024.

The SHA maintained SWM and construction inspection information during FY24 utilizing the processes described in the *Stormwater Management* section of the FY19 MS4 Annual Report. In accordance with conditions in Part IV.B of the MS4 Permit, a summary of construction inspections, non-compliance findings, and the actions taken by SHA Districts is referenced in Section 1.11 of, and is provided as electronic data with, the *SHA Annual Report for Delegation of Sediment and Stormwater Approval Authority* that was submitted to the MDE on October 9, 2024. Information for the SHA SWM program; including required documentation in accordance with conditions in Parts IV.D.1.b, IV.D.1.c, and IV.D.1.d of the MS4 Permit; is provided in the *SWM* table of the MS4 Geodatabase – Part 1.

During the FY24 reporting period, SHA conducted 3,063 preventative maintenance inspections of SWM facilities statewide in accordance with COMAR 26.17.02. Of those, 2,392 inspections were completed in MS4 permitted areas in accordance with conditions in Part IV.D.1.d of the MS4 Permit. Inspection procedures for SWM facilities did not receive any updates during FY24 and inspections continued following procedures outlined in prior MS4 Annual Reports. The FY24 inspection activities addressed all SWM facilities due for a preventative maintenance inspection in FY24 except for 20 facilities where SHA inspection crews attempted but were unable to access the site due to vegetation. These SWM facilities have been assigned a failing rating for their FY24 inspection and have been prioritized for clearing and grubbing activities.

In FY24, SHA worked toward equalizing the number of preventative maintenance inspections it performs each year by completing inspections earlier than required (i.e., less than three years since the last inspection date) for many SWM facilities. Equalizing was accomplished by grouping SWM facilities into corridors to facilitate more efficient inspections. In general, SHA found that this approach improved efficiency by reducing drive time between facilities for SHA inspection crews which increased the time those teams could spend inspecting each day and facilitated safer maintenance of traffic operations. The equalizing initiative is planned to be completed during FY25 with all reinspection completed and new inspection groups/corridors established. The SHA has provided the inspection program information in the *BMP Inspections* and *AltBMP Inspections* tables of the MS4 Geodatabase – Part 1.

The SHA performed 80 initial inspections in MS4 permitted areas. Initial inspections were performed using processes described in the *Stormwater Management* section of the FY20 and FY21 MS4 Annual Reports and are reported in the *SWM* table of the MS4 Geodatabase – Part 1. During the FY24 reporting period, 7 initial inspections were flagged for follow-up activities that can include additional inspections or repair, remediation, and/or retrofit/reconstruction activities. All 14 SWM facilities flagged for follow-up activities by FY23 initial inspections were determined to be functioning as designed during FY24.

The SHA continued to perform routine maintenance on SWM facilities during FY24. As a result of routine mowing and litter removal activities implemented by SHA District maintenance staff, 1,234 roadside swales received the highest possible rating from both their preceding and most recent triennial, preventative maintenance inspections. District-specific guidance developed by SHA for routine maintenance of SWM facilities can be found online at the following SHA webpage:

https://www.roads.maryland.gov/mdotsha/pages/Index.aspx?PageId=363

In FY24, SHA continued work to address maintenance issues identified in FY23 for SWM facilities. In accordance with the 67 SHA 'maintenance enforcements' reported for non-functioning SWM facilities in the *Stormwater Management* section of the FY23 MS4 Annual Report, SHA contracted construction for 1 SWM facility rehabilitation and began or continued project planning or rehabilitation/retrofit design activities for the remaining 66 SWM facilities during FY24. During FY23, one SWM facility rehabilitation was reported as delayed due to permitting challenges that persisted through FY24. The HHD and PRD are working to resolve the permitting challenges and continue forward with the rehabilitation in FY25. Five new contracts were initiated in FY24 for rehabilitation of SWM facilities. Construction is anticipated to begin under the new contracts in FY25 and FY26. The SHA identified 38 new 'maintenance enforcements' during FY24 for non-functioning SWM facilities in the MS4 permitted areas. The enforcement action taken in each case was the addition of the given facility to SHA rehabilitation/retrofit design contracts during FY24 that are planned for construction starting in FY25 and FY26.

During the current MS4 Permit term, a total of 59 SWM facilities in the MS4 permitted areas have been rehabilitated by SHA. At the end of FY24, 237 SWM facilities in the MS4 permitted areas still required rehabilitation. In accordance with conditions in Part IV.B of the MS4 Permit, SHA has provided a 'resolution schedule' for SWM facility rehabilitations in Appendix B (see **Table IV.D.1.d**).

During FY24, 23 SWM facilities were identified for removal or abandonment due to impacts from roadway improvement projects. As SWM facilities are approved for abandonment, any loss of water quality/quantity will be accounted for and mitigated by SHA. For abandonments and removals that are not being accounted for as a loss of water quality treatment associated with a new development or redevelopment project, HHD and PRD will review and comment on justifications provided, water quality/quantity losses, and appropriate mitigation requirements.

Erosion and Sediment Control

During the FY24 reporting period, SHA maintained compliance with State and federal laws and regulations for ESC as well as the MDE requirements for permitting, including compliance with the general permits for stormwater and discharges associated with construction activity (NPDES

14-GP and 20-CP) for projects that disturb at least one acre of land. During FY24, a total of 61 SHA construction projects receiving Notice to Proceed required coverage under an NPDES-CA permit.

The SHA continued to submit applications for coverage in FY24 under the NPDES-CA State discharge permit number 14-GP (effective January 1, 2015 and expired December 31, 2019) and the NPDES-CA State discharge permit number 20-CP-A (issued December 31, 2022; effective April 1, 2023; and expires March 31, 2028) for applicable projects. For all projects previously approved for coverage under permit number 14-GP that would continue construction activity beyond September 30, 2023, SHA applied for continued coverage under permit number 20-CP. All 20-CP-A permits needed were issued in FY24. In accordance with conditions in Part IV.D.2.c of the MS4 Permit, SHA has provided the ESC program information in the *Erosion and Sediment Control* table, and the grading permit program information in the *Quarterly Grading Permit* feature class, of the MS4 Geodatabase – Part 1

In accordance with conditions in Part IV.D.2.b of the MS4 Permit, and in cooperation with the Maryland Transportation Builders and Materials Association, SHA continued to offer updated ESC training and issued 404 ESC (a.k.a., "Yellow Card") certifications and 215 re-certifications during the FY24 reporting period. The training was revised to incorporate new information related to 20-CP-A permit requirements. Responsible Personnel Certification training is a pre-requisite for the Yellow Card certification and is administered through the MDE online Responsible Personnel Course. More information regarding ESC certification is available at the following SHA webpage:

https://www.roads.maryland.gov/mdotsha/pages/Index.aspx?PageId=56

Illicit Discharge Detection and Elimination

In accordance with conditions in Part IV.D.3.a of the MS4 Permit, SHA completed 182 Illicit Discharge Detection and Elimination (IDDE) field screenings during FY24. Whenever possible in FY24, SHA prioritized IDDE screening sites that had the greatest potential for illicit discharge pollution, such as those located in or adjacent to commercial and industrial areas. Sites that drain stormwater from SHA-owned facilities not already inspected as a condition of the NPDES 20-SW general permit, such as SHA Park and Ride facilities, were also prioritized. The SHA assessed the relative distribution of sites screened over the MS4 Permit term and selected FY24 IDDE screening sites from Baltimore and Prince George's Counties due to the relatively lower concentration of screenings accomplished in those permitted areas.

Additional IDDE investigation and tracking activities were conducted during FY24 for an illicit discharge (ID) case first reported in Appendix C to the FY22 MS4 Annual Report and for two ID cases opened in FY24. Additional information regarding the history and outcomes of these three cases is provided in Appendix C to this FY24 MS4 Annual Report.

As part of its overarching program to respond to illegal discharges, dumping, and spills, SHA coordinated with the MDE, surrounding jurisdictions, and property owners during FY24 to address and respond to incidents. Spills that occur at 20-SW permitted sites are tracked in the

SHA Regulatory Compliance System maintained by the OED Environmental Compliance Division (ECD). The ECD is in the process of updating its standard operating procedures for managing spills and anticipates completing the effort in FY25. In accordance with conditions in Parts IV.B, IV.D.3.d, and IV.D.3.e of the MS4 Permit, a summary of outfalls screened and potential IDs, with associated jurisdictional contacts/resolution schedules for each, is provided in **Tables IV.D.3.a and IV.D.3.d** located in Appendix C. In the MS4 Geodatabase – Part 1, SHA has provided the IDDE program information in the *IDDE Screening* table. An additional 7 records are provided in the *IDDE Screening* table of the MS4 Geodatabase – Part 1 for IDDE field screenings of outfalls that were conducted between December 2022 and February 2023 that were inadvertently omitted from the FY23 MS4 Annual Report geodatabases.

In accordance with conditions in Part IV.D.3.b of the MS4 Permit, ECD completed multimedia facility inspections during FY24 at SHA-owned industrial areas identified in accordance with Part IV.C.2 of the MS4 Permit. The ECD inspected 32 NPDES 20-SW permitted facilities during the reporting period. Twenty of the 20-SW permitted facilities inspected in FY24 were in the MS4 permitted areas. A total of 69 stormwater related findings were generated from statewide inspections at NPDES 20-SW permitted facilities during FY24. Of those findings, 61 were resolved and 8 remained unresolved at the end of FY24. The total number of unresolved findings from FY24 include three unresolved findings from FY23. The SHA will address unresolved findings during FY25 through continued communication with maintenance managers and additional tracking for confirmation. In accordance with conditions in Part IV.B of the MS4 Permit, a summary of the most recent quarterly inspection for each NPDES 20-SW permitted facility within the MS4 permitted areas is provided in **Table IV.D.3.b** located in Appendix C.

The ECD and SHA District maintenance crews collectively performed annual visual surveys at 148 non-permitted industrial areas during FY24. The MDE geodatabase structure does not support reporting annual visual survey information. The SHA has provided a Microsoft Excel workbook with this FY24 MS4 Annual Report to report the date, issues identified, and status of issue resolutions associated with the most recent annual visual survey conducted at each non-permitted industrial area located within the MS4 permitted areas.

Trash and Litter

The SHA 'multi-pronged' approach to trash/litter reduction continued in FY24 supported by SHA employees, contractors, correctional services, the Sponsor-A-Highway (SAH) program and partnerships, and labor donated through Adopt-A-Highway (AAH) volunteers. Implementation of the AAH and SAH programs in FY24 resulted in 106 highway miles adopted and 310 miles sponsored. Relative to FY23, this is a decrease of 20 miles for AAH and an increase of 10 miles for SAH.

In FY23, SHA launched "Operation Clean Sweep" to increase roadside mowing, trimming, litter pick-up, and debris pick-up activities statewide. Operation Clean Sweep continued in FY24 from March 18, 2024 to March 22, 2024 and resources were concentrated to pick up litter in green spaces. Daily litter removal reports provide SHA with the total number of bags filled and total weight for trash/litter reduction modeling. The FY24 average weight per bag was 12 lbs. For comparison purposes, the FY23 average weight per bag was 9 lbs. The SHA trash/litter reduction modeling method assumes that 1 truckload holds 50 bags of litter. In accordance with conditions in Part IV.D.4.d of the MS4 Permit, trash/litter removed by SHA trash reduction strategies during FY24 is documented in **Table IV.D.4.d**.

In accordance with conditions in Parts IV.D.4.b and V.A.1.d of the MS4 Permit, public education and outreach activities implemented by SHA during FY24 to reduce littering are incorporated into the summary describing public education programs in **Appendix D**. Throughout FY24, SHA provided information related to proper litter/trash disposal and stopping roadside dumping on its "Educational Outreach" webpage located at the following address:

https://www.roads.maryland.gov/mdotsha/pages/index.aspx?PageId=48

Table IV.D.4.d: Trash and Litter Removed During FY24 by SHA Trash Reduction Strategies

Jurisdiction	Truckloads	Conversion to Pounds
Anne Arundel	620	372,150
Baltimore	1,881	1,128,774
Carroll	98	58,554
Cecil	167	99,960
Charles	206	123,702
Frederick	430	257,904
Harford	166	99,804
Howard	397	238,176
Montgomery	505	303,060
Prince George's	887	531,882
Washington	87	52,530
Salisbury*	0*	0*
Totals	**5,444**	**3,266,496**

* The SHA was unable to separate trash/litter removal activities conducted within the City of Salisbury boundary from the countywide data collected for Wicomico County, wherein 69 truckloads (or 41,400 pounds) of trash/litter were removed by SHA during FY24.

Property Management and Maintenance

All SHA sites previously covered under the NPDES general permit number 12-SW for discharges from stormwater associated with industrial activities are now covered under the newly issued permit number 20-SW. During FY24, SHA continued to monitor the need to update Storm Water Pollution Prevention Plans (SWPPPs) and maps following site changes and renovations and continued providing annual SWPPP training to its maintenance personnel. The SHA District maintenance facility staff and the ECD District Environmental Coordinators implemented inspections during FY24 at all SHA facilities covered under the NPDES 20-SW permit in accordance with applicable SWPPPs.

For each municipal facility within the MS4 permitted areas and covered under the NPDES 20-SW discharge permit, SHA has provided, in **Table IV.D.5.a**, a summary of updates to facility SWPPPs and associated trainings for staff in accordance with conditions in Parts IV.D.5.a and IV.D.5.b.v of the MS4 Permit. Road maintenance staffing increased in FY24 compared to FY23. In addition, the ECD resumed in-person SWPPP training in FY24. Training was completed remotely in recent years because of the COVID-19 pandemic. In-person training allowed more accurate tracking of training attendance and an increase in employee attendance, resulting in an increase of trained individuals from FY23 to FY24. As previously reported, the Thurmont facility remains designated as a "satellite" site of the Frederick maintenance facility. The Thurmont facility is a NPDES 20-SW permitted site and consequently requires an associated SWPPP; however, the staff training is accounted for within the Frederick facility's staff training totals in Table IV.D.5.a below. In the *Municipal Facilities* feature class of the MS4 Geodatabase – Part 1, SHA has provided information for NPDES 20-SW permitted facilities located in the MS4 permitted areas.

Table IV.D.5.a: Summary of SWPPP Status and Training for SHA Municipal Facilities

District	Maintenance Facility	20-SW Permit Type	Date of Most Recent SWPPP Update (Month-YR)	Date of Most Recent SWPPP Training (Month-YR)	Number of Individuals Trained
1	Cambridge	General	April-23	October-23	22
	Salisbury	General	April-23	December-23	27
2	Elkton	General	April-23	October-23 & December-23	32
3	Fairland	General	April-23	November-23	27
	Gaithersburg	General	April-23	November-23	25
	Laurel	General	April-23	November-23 & December-23	32
	Marlboro	General	April-23	November-23 & December-23	43
4	Churchville	General	April-23	March-24	41
	Golden Ring	General	April-23	March-24 & April-24	35
	Hereford	General	April-23	March-24 & April-24	33
	Owings Mills	General	April-23	March-24	20
5	Annapolis	General	April-23	September-23	40
	Glen Burnie	General	April-23	September-23	38
	La Plata	General	April-23	September 23	34
	Hanover Auto Shop	General	April-23	June-24	5
6	Hagerstown	General	April-23	March-24	42
7	Dayton	General	April-23	March-24	36
	Frederick	General	April-23	March-24	40
	Thurmont	General	April-23	-	-
	Westminster	General	April-23	March-24	31
				Total	**603**

In accordance with conditions in Part IV.D.5.b of the MS4 Permit, SHA continued implementation of its programs to reduce pollutants associated with maintenance activities at SHA-owned facilities. SHA has provided its statewide usage for herbicide, fertilizer, and deicing chemicals during FY24 in the *Chemical Application* table of the MS4 Geodatabase – Part 1.

Throughout FY24, SHA performed inlet cleaning, using vacuum technology, and street sweeping along SHA roadways. Information for FY24 implementation of inlet cleaning and storm drain vacuuming operations is provided in **Table IV.D.5.b** below and both street sweeping and inlet cleaning are reported further in the MS4 Geodatabase – Part 2.

In FY24, SHA applied a wide variety of herbicides alone and in mixtures as glyphosate alternatives. The SHA references purchasing records and estimates of contractor application usage from contract documents to report statewide application of vegetation management chemicals.

Table IV.D.5.b: Tons Collected in FY24 from Inlet Cleaning and Storm Drain Vacuuming

County	SHA Maintenance Shop	Total Number of Inlets Cleaned	Tons Collected[1]	Tons Collected from Storm Drain Vacuuming
Anne Arundel	Annapolis	31	3.3	23.6
	Glen Burnie	338	35.5	41.0
Baltimore	Golden Ring	9	0.9	3.7
	Hereford	5	0.5	0.0
	Owings Mills	62	6.5	8.1
Carroll	Westminster	3	0.3	23.4
Cecil	Elkton	5	0.5	12.6
Charles	La Plata	0	0.0	0.0
Frederick	Frederick	10	1.1	6.9
Harford	Churchville	16	1.7	6.0
Howard	Dayton	12	1.3	8.0
Montgomery	Fairland	36	3.8	0.0
	Gaithersburg	0	0.0	0.0
Prince George's	Laurel	0	0.0	1.1
	Upper Marlboro	3	0.3	3.9
Washington	Hagerstown	0	0.0	0.0
Wicomico[2]	Salisbury	26	2.7	5.3
Totals		**556**	**58.4**	**143.6**

1. Assumes 300 lbs. of wet weight cleaned from each inlet. Calculated wet weight was multiplied by 0.7 to estimate dry weight that was then converted to tons.
2. The City of Salisbury is a Phase I MS4 jurisdiction, not Wicomico County as a whole. The SHA was unable to quantify data for activities performed within the City of Salisbury limits. 26 inlets were cleaned in Wicomico County in FY24.

The SHA educated 67 participants across the August 2023 and February 2024 sessions of its "ENV 100" course that provides opportunity to become an MDA-Registered Pesticide Applicator. The SHA "ENV 200" class provides MDA Pesticide Applicator recertification credit and was presented to 73 SHA staff in May 2024. The MDA Pesticide Applicator Core and ROW test preparatory training, "ENV 210", was not provided in FY24.

The SHA continued efforts to reduce the extent of frequently mowed areas during FY24 and increased the installation of meadows on new construction projects, where appropriate. The percentage of meadow used for permanent stabilization by SHA increased from 44.4% in FY23 to 50.2% in FY24. Meadow plantings include a seed mix of primarily native, taller-growing species that are intended for less frequent mowing cycles. The SHA otherwise stabilizes areas disturbed by construction activities with topsoil, a fertilizer blend, seeded turfgrass, and straw to reduce erosion through vegetative establishment and growth.

In FY24, SHA continued to use slow-release nitrogen and low-phosphorus or no-phosphorus fertilizers when establishing and maintaining turf, meadows, and other vegetation. The total area stabilized in FY24 using these methods was almost twice the FY23 area. Fertilizer application amounts are modeled based on the square footage of the seeding applied and are reported in pounds of nitrogen and phosphorus. Topsoil stockpiles of producers are sampled and tested for major and minor plant nutrients every six months and test results are used to develop Nutrient Management Plans to ensure optimal nutrient levels while avoiding excess fertilizer application.

The SHA continued to test and evaluate new equipment and strategies during FY24 in an on-going effort to improve the level of service provided to motorists during winter storms while minimizing the impact of its operations on the environment. In FY24, SHA continued to minimize the use of winter deicing materials using previously reported practices like "anti-icing" before storm events and through continuation of the *Annual Snow College* training for State and contractor operators. A description of SHA winter operations and a link to the current version of SHA Salt Management Plan, most recently updated in October 2023, is publicly accessible at the following web address:

https://www.roads.maryland.gov/mdotsha/pages/index.aspx?PageId=352

The SHA continued applying solid (e.g., rock salt, solar salt) and liquid (e.g., salt brine) deicing chemicals to roadways statewide during the 2023/2024 winter season to protect the safety of motorists. FY24 application amounts show a significant increase in the use of solid deicing chemicals and a similarly significant increase in the use of liquid chemicals when compared to the amounts of each reported for FY23. Increased use of solid deicing chemicals can be directly attributed to increased amounts of frozen precipitation and number of storm events in FY24 relative to previous MS4 reporting periods coupled with a steady influx of inexperienced operators.

The SHA employs approximately 750 snowplow operators at any given time and observed increased turnover rates since 2020. Approximately 500 new snowplow operators were hired by SHA in recent years to replenish its operations workforce. The lower amounts of frozen precipitation observed during preceding fiscal years resulted in reduced opportunities for newer operators to refine or acquire the skills necessary to operate snow management equipment and this hindered SHA salt reduction efforts. The SHA uses a metric of pounds of road salt per total lane miles per inch of snow (lbs./lm./inch) in its year-to-year comparisons of road salt usage. For the FY24 reporting period, the value for this metric was 866 lbs./lm./inch which is an increase of 223 lbs./lm./inch relative to the FY23 period.

In accordance with conditions in Part IV.D.5.b.v of the MS4 Permit, SHA implemented its *Annual Snow College* statewide and trained 143 operators in snow removal and salt management, including new hires and refresher trainees. Prior to the 2023/2024 winter season, SHA's *Annual Snow College* was modified to showcase any equipment and operational changes for the upcoming winter season. The SHA also continued to provide its *Winter Hired Equipment Presentations* during FY24, with annual outreach training an estimated 2,200 temporary, hired equipment operators. The scale of outreach for these trainings is variable year-to-year depending on active contracts, State employee vacancies and new-hires, and equipment acquisitions.

Public Education

In accordance with conditions in Part IV.D.6 of the MS4 Permit, SHA maintained its public education webpage throughout FY24 to provide information to the transportation community for reduction of stormwater pollutants. The SHA organized internal trainings and participated in various educational opportunities throughout FY24 as described further in Appendix D.

The SHA also continued to operate its Customer Care Management System throughout FY24 for the general public to submit service requests. The SHA system received 26,848 service requests in FY24, an 11% increase relative to the FY23 reported amount. Of these, 4,099 service requests were related to littering, dumping, spills, drainage, or water quality issues.

Watershed Assessment

In accordance with conditions in Part IV.E.1 of the MS4 Permit, SHA continued to reference County watershed assessments to identify specific watershed issues and restoration project opportunities. The SHA referenced watershed assessments prepared by Anne Arundel County, Baltimore County, Carroll County, and Howard County during development of its Baltimore Harbor Tidal watershed nutrients TMDL implementation plan. Development of this TMDL implementation plan is discussed further in the *TMDL Compliance* section of this FY24 MS4 Annual Report.

Throughout the current permit term, SHA committed resources to advocating for, drafting, negotiating, executing, and amending long-term Memorandums of Understanding/Agreements with 21 different county, State, and federal government agencies to facilitate collaborative watershed restoration and monitoring activities. These interagency partnerships have facilitated:

- Data exchanges
- ROW/easement acquisition and access
- Monitoring and research for stormwater management and restoration practices
- Design and construction of restoration BMPs including:
    - SWM facilities
    - Forest planting
    - Outfall stabilization
    - Impervious area removal
    - Stream restoration

The SHA met with the National Park Service, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, and the Maryland Department of Natural Resources throughout FY24 to share and discuss watershed restoration strategies, plans, and opportunities for collaborative projects. In FY24, SHA also partnered with Chesapeake Bay Trust (CBT) and contributed to their Pooled Monitoring program efforts.

All restoration planning by SHA for future MS4 permit terms has been based on the 2% per year pace of restoration established for the stormwater sector in Phase I, II, and III of Maryland's Chesapeake Bay Watershed TMDL Implementation Plan and the restoration requirements and associated justifications presented in documents released to the public by the MDE related to its issuance of next generation MS4 permits to the other large and medium Phase I MS4 permittees.

Restoration Plans

In accordance with conditions in Part IV.E.2.a of the MS4 Permit and the MDE 2014 MS4 Accounting Guidance, SHA submitted impervious surface area assessments and implemented restoration BMPs for more than 4,621 equivalent impervious acres (EIA) required by end of the MS4 Permit term. In accordance with conditions in Part IV.E.3 of the MS4 Permit, SHA has provided its EIA achieved in **Table IV.E.3** below. EIA achieved during both the preceding MS4 permit term (applicable to discharge permit number 99-DP-3313 MD0068276 that expired October 21, 2010, and was administratively continued through October 8, 2015) and the current MS4 Permit term is accounted toward the current MS4 Permit restoration goal (i.e., 4,621 EIA) in accordance with the MDE guidance and the EIA computation rules established in the MDE 2014 MS4 Accounting Guidance.

EIA must be permanently removed from SHA restoration progress accounting when the water quality treatment function of any given BMP is directly reduced or eliminated by new development or redevelopment projects (whether by SHA or external agents) or when access or credit claiming rights for any given 'offsite BMP' (i.e., BMPs built on property not owned by SHA) become uncertain. For FY24, SHA has permanently removed 1.81 EIA from its restoration progress accounting presented in Table IV.E.3. Despite the EIA permanently removed in FY24, SHA achieved 6,124 EIA by October 8, 2020 and remains in compliance with the current MS4 Permit restoration goal to achieve at least 4,621 EIA by the MS4 Permit expiration date.

In comments dated July 30, 2021, the MDE stated that SHA may not claim non-functioning restoration BMPs for compliance with the MS4 Permit restoration conditions. SHA has expanded on the MDE guidance since 2021 and temporarily removes EIA credits from SHA annual progress accounting if any given BMP's EIA credit cannot be verified. This includes instances where a given restoration BMP's credit verification inspection is not completed in accordance with the schedules established in the MDE 2014 MS4 Accounting Guidance or when inspection information collected in the field has data quality/accuracy issues. Within the 'GEN_COMMENTS' attribute field for applicable BMP records in the *AltBMPPoly*, *AltBMPLine*, and *BMP* features classes of the MS4 Geodatabase – Part 1, SHA has provided details for temporary or permanent EIA removal and has reduced the credit 'claimed' amount for the BMP accordingly. The total EIA 'claimed' for compliance by SHA, as presented Table IV.E.3, has been discounted for BMPs that have been temporarily removed from SHA's restoration progress accounting.

No new SHA stream restoration or outfall stabilization alternative BMPs completed construction in FY24. Consequently, SHA has no new information to report regarding credit computations for those BMP types so conditions in the MDE geodatabase user guide that require SHA to develop and submit a Stream Restoration Analysis Summary Report have not been met for the FY24 reporting period. Information in/with the *Stream Restoration Analysis Summary Report* provided as Appendix G to the FY23 MS4 Annual Report continues to accurately represent current SHA EIA computations for stream restoration and outfall stabilization alternative BMP types.

Table IV.E.3: EIA Credits Achieved During the MS4 Permit Compliance Period

	MS4 Permit Number 99-DP-3313 MD0068276 Administratively Continued Period	MS4 Permit Number 11-DP-3313 MD0068276 Term							MS4 Permit Number 11-DP-3313 MD0068276 Administratively Continued Period					Total EIA Achieved without Temporary Credit Removals	Total EIA Temporarily Removed	Total EIA Claimed for Compliance[2]
BMP Type	**Total EIA Achieved this Period**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021 July 1, 2020 to Oct. 8, 2020**	**Total EIA Achieved this Period**	**FY 2021 Oct. 9, 2020 to June 30, 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Total EIA Achieved this Period[1]**			
Impervious Urban to Pervious	0.00	0.00	1.83	0.02	0.11	0.49	0.00	2.45	0.00	0.00	0.00	0.00	0.00	**2.45**	**2.34**	**0.11**
Reforestation on Pervious Urban	468.31	56.98	19.69	76.39	71.43	24.10	0.00	248.59	26.74	0.00	0.00	1.28	28.02	**744.92**	**273.73**	**471.19**
New Stormwater Control Structures	84.28	60.49	44.70	51.29	33.09	0.00	0.00	189.57	0.00	0.00	0.00	0.00	0.00	**273.85**	**2.66**	**271.19**
Retrofit Existing Stormwater Control Structures	0.00	100.80	6.33	70.79	56.94	15.99	12.59	263.44	31.69	0.00	0.00	0.00	31.69	**295.13**	**29.35**	**265.78**
Outfall Stabilization	0.00	11.83	9.20	165.26	53.24	160.18	0.00	399.71	299.74	0.00	0.00	0.00	299.74	**699.45**	**0.00**	**699.45**
Stream Restoration	350.13	48.72	22.27	6.84	169.31	3,450.75	420.27	4,118.16	302.07	0.00	0.00	0.00	302.07	**4,770.36**	**0.00**	**4,770.36**
Conservation Landscape	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.38	2.38	**2.38**	**0.00**	**2.38**
Built BMP Totals =	**902.72**	**278.82**	**104.02**	**370.59**	**384.12**	**3,651.51**	**432.86**	**5,221.92**	**660.24**	**0.00**	**0.00**	**3.66**	**663.90**	**6,788.54**	**308.08**	**6,480.46**
Percent Restored of SHA Baseline Untreated Impervious Acres[3] =	**3.91%**	**1.21%**	**0.45%**	**1.60%**	**1.66%**	**15.80%**	**1.87%**	**22.60%**	**2.86%**	**0.00%**	**0.00%**	**0.02%**	**2.87%**	**29.38%**	**1.33%**	**28.05%**
Inlet Cleaning[4]	164															
Street Sweeping[4]	29															
Credit Acquisition	0															

Note: EIA achieved during the MS4 permit number 99-DP-3313 MD0067276 administratively continued period is accountable toward the 4,621 EIA (20%) restoration requirement established in the MS4 permit number 11-DP-3313 MD0068276. As such, 6,124.63 EIA (26.51%) was achieved and is accountable by SHA against the MDE-approved 4,621 (20%) MS4 Permit restoration requirement by October 8, 2020.

[1] EIA achieved after the expiration date of the current MS4 Permit on October 8, 2020 is accounted in accordance with the EIA computation rules established in the MDE 2021 MS4 Accounting Guidance.

[2] Total EIA claimed for compliance after temporary removal of 308.08 EIA associated with BMP credit that could not be verified at the end of FY24.

[3] In MDE comments dated September 16, 2019, MDE established 23,104.8 as the SHA baseline for untreated impervious acres within the MS4 permitted areas.

[4] Total EIA achieved for inlet cleaning and street sweeping annual BMPs is presented here as the average annual implementation through FY20 as finalized in MDE comments dated July 30, 2021. SHA street sweeping and inlet cleaning operations since the end of the current MS4 Permit term have not met the minimum qualifications for restoration credit established in the MDE 2021 MS4 Accounting Guidance so SHA implementation of these BMP types beyond October 8, 2020 is not claimed for restoration credit.

TMDL Compliance

The SHA began development of an individual watershed TMDL implementation plan for nutrients (i.e., nitrogen and phosphorus) in the Baltimore Harbor Tidal watershed during FY24 and will submit the plan to MDE for approval in FY25. Prior to that submittal, SHA will advertise the 30-day public comment period in the Baltimore Sun, Washington Post, and on SHA's website in accordance with conditions in Part IV.E.4.d. of the MS4 Permit.

In accordance with conditions in Part IV.E.5 of the MS4 Permit, SHA has provided its TMDL Assessment Report in Appendix E. The SHA has also provided Chesapeake Bay and local TMDL compliance information in the Chesapeake Bay Progress and Local TMDL Progress tables of the MS4 Geodatabase – Part 1.

Assessment of Controls

The MDE-approved monitoring plans developed by SHA to satisfy conditions in Part IV.F of the MS4 Permit were appended to the FY16 and FY17 MS4 Annual Reports. A summary of the MDE-approved monitoring schedules and SHA progress is provided below in **Table IV.F**.

Table IV.F: Assessment of Controls Monitoring Schedules and Progress

Monitoring Phase	Proposed Dates	Actual Dates	Construction Phase	Comments
Part IV.F.1 - Watershed Restoration Assessment				
CHEM 1	October 2016 to October 2017	September 2016 to December 2017	Pre-construction	Upstream station installed September 2016 and downstream station installed December 2016. Results and analysis reported in FY17 MS4 Annual Report.
BIO 1	March 2016	April 2016 to September 2017	Pre-construction	Monitoring performed annually in 2016 and 2017 to establish range for baseline. Results and analysis reported in FY17 MS4 Annual Report.
PHYS 1	April 2015	September 2017 to February 2018	Pre-construction	Monitoring performed annually in 2017 and 2018 to establish range for baseline. Results and analysis reported in FY17 MS4 Annual Report.
CHEM 2	October 2017 to October 2018	January 2018 to March 2019	Construction	Monitoring work extended and performed throughout the construction phase. Results and analysis reported in FY18 and FY19 MS4 Annual Reports.
BIO 2	N/A	N/A	Construction	Activity not to be performed during construction
PHYS 2	N/A	N/A	Construction	Activity not to be performed during construction but supplementary surveys conducted in July/August 2018 to evaluate changes resulting from severe flood event. Results and analysis reported in FY18 MS4 Annual Report.
CHEM 3	October 2018 to October 2019	April 2019 to April 2020	Post-construction	CHEM 3 completed April 2020; results and analysis reported with FY20 MS4 Annual Report.

Table IV.F: Assessment of Controls Monitoring Schedules and Progress

Monitoring Phase	Proposed Dates	Actual Dates	Construction Phase	Comments
BIO 3	March 2018 to March 2019	April 2019 to April 2020	Post-construction	BIO 3 completed in (spring & summer) 2019. Results and analysis reported with FY20 MS4 Annual Report.
PHYS 3	March 2018 to March 2019	April 2019 to June 2019	Post-construction	PHYS 3 completed in (spring) 2019. Results and analysis reported with the FY19 MS4 Annual Report.
CHEM 4	October 2019 to October 2020	April 2020 to June 2020; June 2022 to June 2023	Post-construction	CHEM 4 partially completed until work stopped in June 2020. CHEM 4 resumed in June 2022. FY23 results and analysis reported with FY23 MS4 Annual Report.
BIO 4	March 2019 to March 2020	April 2020 to June 2020; June 2022	Post-construction	BIO 4 completed in FY22. BIO 4 fish, physical habitat assessment, and supplementary crayfish, mussel, reptile, and amphibian sampling were completed during the summer 2022 sampling index period. Results and analysis reported with FY22 MS4 Annual Report.
PHYS 4	March 2019 to March 2020	April 2020 to June 2020	Post-construction	PHYS 4 completed in 2020. Results and analysis, including the required hydraulic model, submitted with FY20 MS4 Annual Report.
CHEM 5	N/A	June 2023 to June 2024	Post-construction	CHEM 5 was not a component of the MDE-approved study design/monitoring plan but was added at the request of the MDE. FY24 results and analysis reported with the FY24 MS4 Annual Report.
Part IV.F.2 - Stormwater Management Assessment				
Year 1	January 2018 to October 2018	May 2018 to June 2018	Pre-construction	Monitoring completed with results and analysis reported in FY18 MS4 Annual Report.
Year 2	November 2018 to October 2019	July 2018 to June 2019	Pre-construction	Monitoring completed with results and analysis reported in FY19 MS4 Annual Report.
Year 3	November 2019 to October 2020	July 2019 to June 2020	Pre-construction	Monitoring completed with results and analysis reported in FY20 MS4 Annual Report.
Year 4	November 2020 to October 2021	Deferred	Post-construction	**Construction delayed until at least 2025**. Post-construction monitoring deferred accordingly.

In accordance with conditions in Part IV.F.1 of the MS4 Permit and MDE guidance, SHA initiated an additional, 'CHEM 5' monitoring phase, that represents compliance activities performed beyond what was committed by SHA in the MDE-approved study design/monitoring plan for the Little Catoctin Creek stream restoration. The SHA has provided associated chemical monitoring data collected during FY24 in the *Chemical Monitoring* table of the MS4 Geodatabase – Part 1. The SHA has not collected or reported any information for monitoring parameters not required in the current, administratively continued MS4 Permit. In accordance with conditions in Part V.A.1.b of the MS4 Permit, a detailed discussion of chemical monitoring activities and monitoring results is provided in **Appendix F**.

Beginning in FY25, SHA will cease Assessment of Controls monitoring at the Little Catoctin Creek stream restoration project location, and instead will participate in the CBT Pooled

Monitoring program to satisfy the permit requirements for Assessment of Controls. In an August 30, 2024 letter to the MDE, SHA provided notification of its intent to collaborate with the MDE in a Pooled Monitoring Advisory Committee administered by CBT for compliance with the Assessment of Controls, BMP Effectiveness and Watershed Assessment Monitoring conditions of the MS4 Permit. Additionally, SHA provided MDE with a copy of the fully executed MOU with CBT and proof of SHA contribution, in the amount of $770,000.00, to the CBT Pooled Monitoring program. That contribution is intended to satisfy SHA FY25 compliance requirements for Assessment of Controls permit conditions in the current MS4 Permit as well as satisfying Assessment of Controls, BMP Effectiveness and Watershed Assessment, permit conditions for FY26 and part of FY27 under the subsequent MS4 Permit, upon the MDE final determination to issue SHA that new MS4 permit. In a letter to SHA dated September 20, 2024, MDE provided approval of SHA's recent enrollment and future participation in the CBT Pooled Monitoring program to comply with Assessment of Controls permit conditions.

The construction schedule for restoration SWM BMPs referenced in the MDE-approved monitoring plan for SWM Assessment is integrated with, and dependent on, the construction schedule for a Howard County bridge replacement project. The County and SHA resumed their partnership for construction of the SWM BMPs in conjunction with the County bridge project in January 2022 and SHA has continued to fund design of the SWM BMPs. Howard County Funding has been split between multiple years for the bridge project with construction scheduled to start once the project is fully funded in FY28. The County is actively pursuing grants to advance the project schedule and estimated the bridge and SWM BMP construction will take approximately two years to complete.

The SHA has fulfilled its SWM Assessment monitoring obligations by monitoring for at least two full years during the pre-construction period and consequently, did not perform any further pre-construction monitoring activities during FY24. The SHA did not commit to any construction phase monitoring activities in the MDE-approved monitoring plan for SWM Assessment. Hydrologic and/or hydraulic modeling was not performed in the fourth year of the MS4 Permit term, in accordance with conditions in Part IV.F.2.c, because the pre-requisite SWM BMP construction has not yet been initiated.

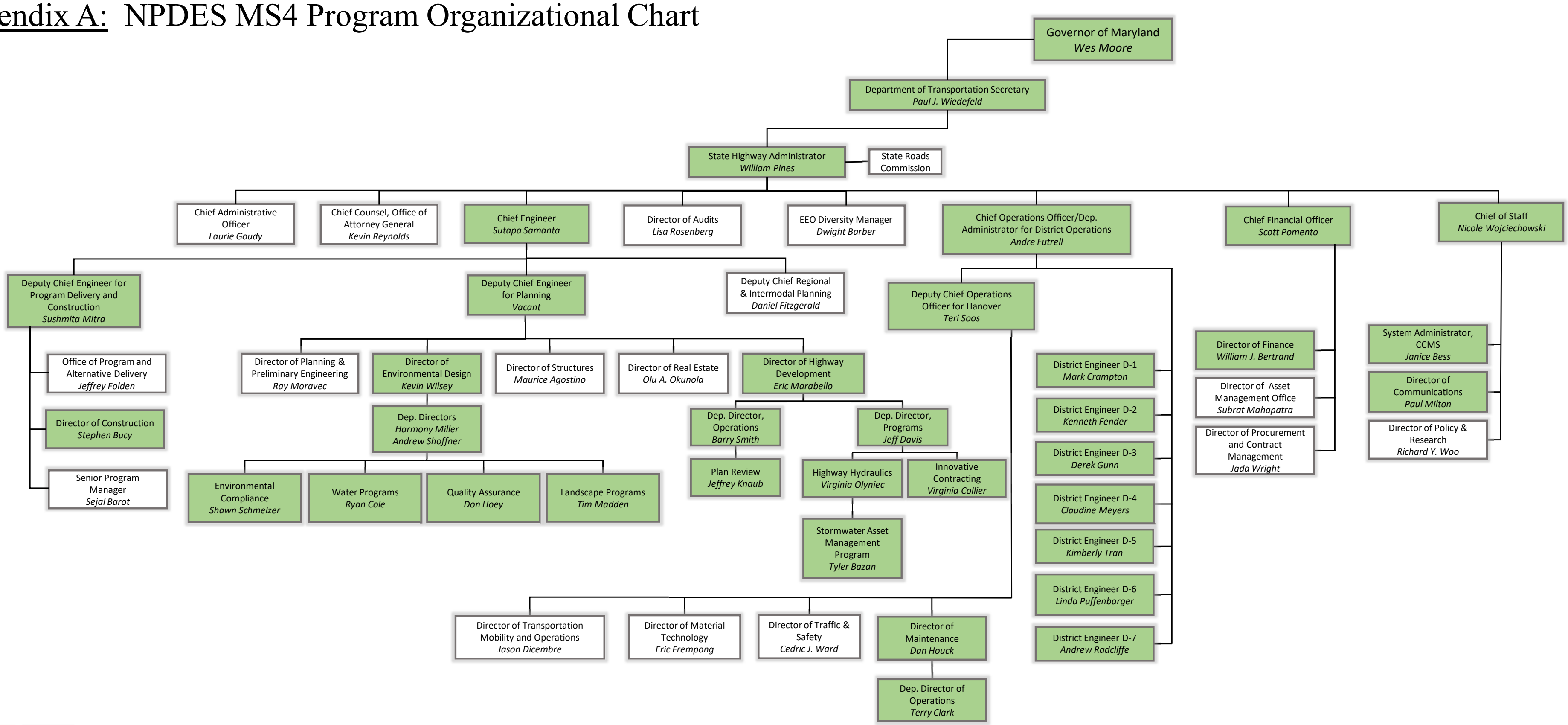
Program Funding

In accordance with conditions in Parts IV.G.1 and V.A.1.c of the MS4 Permit, SHA has provided program funding information in the *Fiscal Analyses* table of the MS4 Geodatabase – Part 1. **Table V.A.1.c** below contains a supplemental summary of this information.

Table V.A.1.c: MS4 Expenditures for FY24 and Proposed Budget for FY25

Fund	FY24 Expenditures (Millions*)	FY25 Budget (Millions*)
Fund 82 – TMDL Compliance & MS4 Program Management	$11.9	$18.7
Fund 74 – Drainage	$22.6	$18.5
Fund 49 – Industrial	$0.41	$0.87
Fund 14 – Operations/Maintenance	$14.9	$14.9
Totals:	**$49.8**	**$53.0**

Appendix A: NPDES MS4 Program Organizational Chart



MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

[Title]
[*Name*] = Personnel responsible for major NPDES program tasks

<u>Appendix B:</u> Rehabilitation Report for Stormwater Controls

In FY19 and FY20, SHA began changing its processes for creating rehabilitation work orders (formally known as "remediation work orders") to repair failing SWM facilities. Inspection and CADD standards were created and the process for designing work order plan sets was streamlined. These templates were distributed in FY21 and included standard sheets for erosion and sediment control, sequences of construction, and documentation for "Rehabilitation Verification." During FY24, HHD continued use of these templates for SWM rehabilitation projects and updated them for compliance with the NPDES 20-CP-A permit for stormwater discharges associated with construction activity.

The risk and criticality analysis model developed in FY22 and described in Appendix B of the FY22 MS4 annual report continued to be used for site prioritization in FY24. The model continues to increase contract efficiency by facilitating geographically based grouping for rehabilitation sites. As a result of this geographic grouping, some facilities are included in rehabilitation contracts in advance of meeting the criteria for inclusion in Table IV.D.1d as a failed facility. These facilities are included in the contracts in order to proactively address facilities' functional needs and prevent future failures. The facilities are included in the table below and identified as passing, they have also been counted as a FY24 maintenance enforcement. The risk and criticality analysis was also applied to outfall assessments to aid prioritization of corridors most critical for inspection. Application of this analysis to outfall assessments will allow SHA to inspect outfalls, update connected storm drain inventory, and identify major outfalls in a systematic fashion across the state.

Through partnership with the Federal Highway Administration, SHA was able to determine that stormwater facility and outfall rehabilitation along the National Highway System (NHS) is eligible for federal funding. This determination opens new avenues for SHA to fund stormwater rehabilitation work and support the national highway system. Future projects that meet the established eligibility criteria will work to utilize this means of funding, potentially allowing for stormwater rehabilitation efforts to better weather funding downturns and allow consistent progression.

Standard Operating Procedure (SOP) documents for stormwater inspection and rehabilitation were updated in FY23 to incorporate feedback from contractors, inspectors, and other stakeholders. No updates or revisions were made to these documents in FY24, and they continued to be actively used for stormwater inspection and rehabilitation activities.

In accordance with conditions in Part IV.B of the MS4 Permit, SHA has provided **Table IV.D.1.d** below to summarize the current resolution schedule for SWM facilities requiring rehabilitation or retrofit. Information provided includes identification of applicable rehabilitation contracts, commitments for dates of completion, and comments on the status of work.

Table IV.D.1.d: SHA SWM Facilities for Rehabilitation Work Orders

SWM Facility Number	Facility Type	MDE Pass / Fail	Contract	Completion Commitment Date	Rehabilitation Comments
020003	Infiltration Basin	Fail		06/30/2028	BMP Added to List in FY24
020026	Wet Pond	Fail		9/30/2028	Redesign and Permitting Required[1]
020052	Infiltration Basin	Fail		6/30/2028	
020061	Infiltration Basin	Fail		9/30/2028	
020088	Surface Sand Filter	Fail		6/30/2028	
020092	Infiltration Trench	Fail		9/30/2028	Redesign and Permitting Required[1]
020103	Wet Pond	Fail		6/30/2028	Redesign and Permitting Required[1]
020114	Wet Pond	Fail		6/30/2028	Redesign and Permitting Required[1]
020124	Wet Pond	Fail		6/30/2028	Redesign and Permitting Required[1]
020167	Dry Pond	Fail		9/30/2028	
020177	Infiltration Trench	Fail		9/30/2028	
020231	Infiltration Trench	Fail		6/30/2028	
020244	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
020260	Infiltration Basin	Pass	AA8225174	6/30/2021	FY20 Construction Complete, As-Builts Under Review. Per Latest Inspection, BMP is Functioning as Designed
020271	Infiltration Basin	Fail		6/30/2028	Redesign and Permitting Required[1]
020272	Wet Pond	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
020273	Dry Pond	Fail		6/30/2028	
020338	Infiltration Basin	Fail		9/30/2028	
020339	Infiltration Basin	Fail		6/30/2028	
020357	Infiltration Trench	Fail	AA9785474	6/30/2025	Contracted for Construction
020363	Wet Extended Detention Pond	Fail		9/30/2028	
020388	Infiltration Basin	Fail		9/30/2028	
020393	Infiltration Basin	Fail		6/30/2028	
020394	Infiltration Basin	Fail		9/30/2028	
020396	Infiltration Basin	Fail		6/30/2028	Redesign and Permitting Required[1]

Table IV.D.1.d: SHA SWM Facilities for Rehabilitation Work Orders

SWM Facility Number	Facility Type	MDE Pass / Fail	Contract	Completion Commitment Date	Rehabilitation Comments
020399	Infiltration Basin	Fail		6/30/2028	
020403	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
020406	Dry Pond	Fail		6/30/2028	Redesign and Permitting Required[1]
020409	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
020410	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
020429	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
020473	Infiltration Basin	Fail		06/30/2028	BMP Added to List in FY24
020480	Wet Pond	Fail		6/30/2028	
020484	Infiltration Trench	Fail	AA9785174	6/30/2025	Contracted for Construction
020486	Wet Pond	Fail		6/30/2028	Redesign and Permitting Required[1]
020489	Infiltration Basin	Fail		9/30/2028	Redesign and Permitting Required[1]
020490	Infiltration Trench	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
020494	Infiltration Basin	Fail		6/30/2028	Redesign and Permitting Required[1]
020495	Infiltration Trench	Pass	AA9785274	06/30/2025	BMP Added to List in FY24. Contracted for Construction
020514	Infiltration Basin	Fail		6/30/2028	
020516	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
020517	Infiltration Trench	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
020521	Multiple Pond System	Fail		06/30/2028	BMP Added to List in FY24
020522	Wet Pond	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
020528	Infiltration Trench	Pass	XB1965574	6/30/2028	In Design and Permitting Process
020532	Infiltration Trench	Fail		6/30/2028	
020538	Infiltration Trench	Fail	XB1965574	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
020544	Wet Pond	Fail		6/30/2028	
020559	Infiltration Basin	Fail		6/30/2028	
020560	Infiltration Basin	Fail		6/30/2028	

Table IV.D.1.d: SHA SWM Facilities for Rehabilitation Work Orders

SWM Facility Number	Facility Type	MDE Pass / Fail	Contract	Completion Commitment Date	Rehabilitation Comments
020561	Infiltration Basin	Fail		6/30/2028	
020565	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
020584	Wet Extended Detention Pond	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
020603	Bioretention	Fail		6/30/2028	
020608	Bioretention	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
020760	Infiltration Basin	Fail		6/30/2028	Redesign and Permitting Required[1]
020761	Infiltration Basin	Fail		6/30/2028	
020769	Infiltration Trench	Pass	XB1965574	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
020771	Infiltration Trench	Pass	XB1965574	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
020774	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
020782	Infiltration Trench	Fail	AA9785374	6/30/2025	Contracted for Construction
020787	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
020795	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
020800	Infiltration Basin	Fail		06/30/2028	BMP Added to List in FY24
020810	Infiltration Trench	Fail		6/30/2028	
020811	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
020817	Surface Sand Filter	Fail		6/30/2028	
020820	Surface Sand Filter	Fail		6/30/2028	
020827	Wet Pond	Fail		6/30/2028	Redesign and Permitting Required[1]
020833	Infiltration Basin	Pass	XB1965574	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
020834	Infiltration Trench	Pass	XB1965574	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
020837	Infiltration Trench	Pass	XB1965574	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process

Table IV.D.1.d: SHA SWM Facilities for Rehabilitation Work Orders

SWM Facility Number	Facility Type	MDE Pass / Fail	Contract	Completion Commitment Date	Rehabilitation Comments
020845	Infiltration Basin	Fail		6/30/2028	Redesign and Permitting Required[1]
020850	Infiltration Basin	Fail		9/30/2028	
020868	Infiltration Trench	Pass	AA9785574	6/30/2025	Contracted for Construction
020875	Infiltration Basin	Fail		6/30/2028	Redesign and Permitting Required[1]
020880	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
021012	Micropool Extended Detention Pond	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
021018	Infiltration Basin	Fail		6/30/2028	
021472	Bio-Swale	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
021473	Bio-Swale	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
030001	Grass Channel Credit	Fail	XB1965474	6/30/2028	In Design and Permitting Process
030002	Grass Channel Credit	Pass	XB1965474	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
030003	Grass Channel Credit	Pass	XB1965474	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
030005	Grass Swale	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
030007	Underground Detention	Pass	XB1965474	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
030008	Underground Detention	Pass	XB1965474	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
030011	Wet Pond	Fail		6/30/2028	Redesign and Permitting Required[1]
030031	Bioretention	Fail		06/30/2028	BMP Added to List in FY24
030050	Infiltration Basin	Pass	XB1965474	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
030113	Infiltration Trench	Fail		6/30/2028	
030116	Infiltration Basin	Fail		6/30/2028	Redesign and Permitting Required[1]

Table IV.D.1.d: SHA SWM Facilities for Rehabilitation Work Orders

SWM Facility Number	Facility Type	MDE Pass / Fail	Contract	Completion Commitment Date	Rehabilitation Comments
030124	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
030131	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
030157	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
030175	Dry Pond	Fail	XB1965474	6/30/2028	In Design and Permitting Process
030183	Infiltration Basin	Fail		6/30/2028	
030189	Infiltration Basin	Fail		9/30/2028	
030195	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
030199	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
030200	Infiltration Basin	Fail		6/30/2028	Redesign and Permitting Required[1]
030209	Infiltration Trench	Fail	XB1965474	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
030210	Infiltration Trench	Fail	XB1965474	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
030211	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
030212	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
030213	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
030214	Infiltration Basin	Fail		9/30/2028	
030215	Infiltration Basin	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
030220	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
030245	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
030252	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
030253	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
030256	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
030269	Dry Pond	Fail		6/30/2028	
030274	Infiltration Trench	Fail		6/30/2028	

Table IV.D.1.d: SHA SWM Facilities for Rehabilitation Work Orders

SWM Facility Number	Facility Type	MDE Pass / Fail	Contract	Completion Commitment Date	Rehabilitation Comments
030284	Bioretention	Fail		6/30/2028	
030333	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
030385	Surface Sand Filter	Fail	XB1965474	6/30/2028	In Design and Permitting Process
030528	Wet Pond	Pass	XB1965474	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
030936	2A Grass Swale	Fail		6/30/2028	
040001	Bioretention	Fail		6/30/2028	
040016	Dry Swale	Fail		6/30/2028	
040036	Dry Pond	Fail	XB1965574	6/30/2028	In Design and Permitting Process
040118	Infiltration Trench	Fail		6/30/2028	
060106	Dry Pond	Fail		6/30/2028	
070003	Infiltration Basin	Fail		6/30/2028	Redesign and Permitting Required[1]
070004	Infiltration Basin	Fail		6/30/2028	Redesign and Permitting Required[1]
080004	Wet Pond	Fail		6/30/2028	
080019	Infiltration Basin	Fail		6/30/2028	
080037	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
080069	Wet Pond	Fail		6/30/2028	
080070	Wet Pond	Fail		6/30/2028	
080071	Wet Pond	Fail		6/30/2028	
080074	Wet Pond	Fail		6/30/2028	
082187	Underground Detention	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
092591	Wet Pond	Fail		6/30/2028	
100001	Bioretention	Fail		6/30/2028	
100004	Surface Sand Filter	Fail		6/30/2028	Redesign and Permitting Required[1]
100060	Infiltration Basin	Fail		6/30/2028	Redesign and Permitting Required[1]
100065	Dry Pond	Fail		6/30/2028	Redesign and Permitting Required[1]
100099	Wet Pond	Fail		6/30/2028	Redesign and Permitting Required[1]
100129	Wet Swale	Fail		6/30/2028	

Table IV.D.1.d: SHA SWM Facilities for Rehabilitation Work Orders

SWM Facility Number	Facility Type	MDE Pass / Fail	Contract	Completion Commitment Date	Rehabilitation Comments
100310	Bio-Swale	Fail		6/30/2028	
120008	Dry Pond	Fail		6/30/2028	Redesign and Permitting Required[1]
120009	Dry Pond	Fail		6/30/2028	
120017	Infiltration Trench	Pass	XX1965474	6/30/2028	In Design and Permitting Process.
120019	Infiltration Trench	Fail		6/30/2028	
120039	Infiltration Trench	Fail		9/30/2028	Redesign and Permitting Required[1]
120042	Infiltration Trench	Fail		9/30/2028	Redesign and Permitting Required[1]
120062	Dry Pond	Pass	XB1965474	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
120063	Infiltration Trench	Fail	XB1965474	6/30/2028	In Design and Permitting Process
120066	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
120071	Bioretention	Pass	XB1965474	06/30/2028	BMP Added to List in FY24 In Design and Permitting Process
120089	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
120091	Wet Extended Detention Pond	Pass	XB1965474	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
120092	Infiltration Trench	Pass	XB1965474	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
120095	Infiltration Basin	Removed		6/30/2028	Removed by MDTA I-95 Construction
120105	Dry Extended Detention Pond	Fail		9/30/2028	
120108	Infiltration Basin	Fail		6/30/2028	
120112	Infiltration Trench	Fail	XB1965474	6/30/2028	In Design and Permitting Process
120116	Infiltration Trench	Pass	XB1965474	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
120117	Infiltration Trench	Pass	XB1965474	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process

Table IV.D.1.d: SHA SWM Facilities for Rehabilitation Work Orders

SWM Facility Number	Facility Type	MDE Pass / Fail	Contract	Completion Commitment Date	Rehabilitation Comments
120133	Infiltration Basin	Fail		9/30/2028	
120208	Surface Sand Filter	Fail		6/30/2028	Redesign and Permitting Required[1]
120216	Surface Sand Filter	Pass	XB1965474	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
120291	Wet Pond	Fail		6/30/2028	Redesign and Permitting Required[1]
122029	Rain Garden	Fail		06/30/2028	BMP Added to List in FY24
130013	Dry Extended Detention Pond	Fail	XB1965774	6/30/2028	In Design and Permitting Process
130033	Dry Pond	Fail	XB1965774	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
130050	Infiltration Basin	Fail		6/30/2028	
130072	Dry Extended Detention Pond	Fail		9/30/2028	
130074	Micropool Extended Detention Pond	Fail		9/30/2027	Redesign and Permitting Required[1]
130077	Wet Pond	Fail		9/30/2028	
130078	Dry Pond	Fail	XB1965774	6/30/2028	In Design and Permitting Process
130134	Wet Pond	Fail		6/30/2028	
130180	Grass Swale	Fail		6/30/2028	
130204	Infiltration Basin	Fail	HO5165174	6/30/2026	In Design and Permitting Process
130206	Wet Pond	Fail		9/30/2028	
130208	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
130225	Shallow Wetland	Pass	XB1965774	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
130237	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
130251	Surface Sand Filter	Fail		6/30/2028	Redesign and Permitting Required[1]
130259	Surface Sand Filter	Fail		6/30/2028	Redesign and Permitting Required[1]
130263	Surface Sand Filter	Fail		6/30/2028	

Table IV.D.1.d: SHA SWM Facilities for Rehabilitation Work Orders

SWM Facility Number	Facility Type	MDE Pass / Fail	Contract	Completion Commitment Date	Rehabilitation Comments
130271	Dry Pond	Fail		6/30/2028	Redesign and Permitting Required[1]
130292	Infiltration Basin	Fail		6/30/2028	Redesign and Permitting Required[1]
130293	Other Infiltration	Pass		6/30/2028	Redesign and Permitting Required[1]
130294	Infiltration Basin	Fail		6/30/2028	Redesign and Permitting Required[1]
130317	Infiltration Trench	Fail		6/30/2028	
130319	Infiltration Trench	Fail		6/30/2028	
130326	Infiltration Trench	Fail	XB1965774	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
130332	Infiltration Trench	Fail		6/30/2028	
130366	Infiltration Trench	Fail		6/30/2028	BMP Failed Post Rehabilitation, Recommended for Retrofit
130386	Infiltration Basin	Fail		06/30/2028	BMP Added to List in FY24
130388	Grass Swale	Pass	HO5255174	06/30/2025	BMP Added to List in FY24. Contracted for Construction
130390	Grass Swale	Pass	HO5255274	06/30/2025	BMP Added to List in FY24. Contracted for Construction
130393	Grass Swale	Pass	HO5255374	06/30/2025	BMP Added to List in FY24. Contracted for Construction
130394	Grass Swale	Pass	XB1965774	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
130396	Grass Swale	Pass	XB1965774	06/30/2028	BMP Added to List in FY24. In Design and Permitting Process
130421	Wet Pond	Fail		6/30/2028	
132097	Micro-Bioretention	Fail		6/30/2028	
150066	Dry Pond	Fail		6/30/2028	
150175	Landscape Infiltration	Fail		06/30/2028	BMP Added to List in FY24
150201	Infiltration Trench	Fail		6/30/2028	
150232	Infiltration Trench	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed

Table IV.D.1.d: SHA SWM Facilities for Rehabilitation Work Orders

SWM Facility Number	Facility Type	MDE Pass / Fail	Contract	Completion Commitment Date	Rehabilitation Comments
150238	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
150242	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
150252	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
150285	Dry Pond	Pass	XB1965374	6/30/2027	In Design and Permitting Process
150295	Surface Sand Filter	Pass	XB1965374	6/30/2027	In Design and Permitting Process.
150304	Surface Sand Filter	Fail	XB1965374	6/30/2027	In Design and Permitting Process
150312	Dry Extended Detention Pond	Fail		9/30/2028	
150327	Infiltration Trench	Pass	XB1965374	06/30/2027	BMP Added to List in FY24. In Design and Permitting Process
150328	Infiltration Trench	Pass	XB1965374	06/30/2027	BMP Added to List in FY24. In Design and Permitting Process
150389	Dry Pond	Pass	XB1965374	06/30/2027	BMP Added to List in FY24. In Design and Permitting Process
150391	Wet Pond	Pass	XB1965374	06/30/2027	BMP Added to List in FY24. In Design and Permitting Process
150550	Grass Swale	Pass	XB1965374	06/30/2027	BMP Added to List in FY24. In Design and Permitting Process
150555	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
150616	Bioretention	Pass	XB1965374	06/30/2027	BMP Added to List in FY24. In Design and Permitting Process
150617	Bioretention	Pass	XB1965374	06/30/2027	BMP Added to List in FY24. In Design and Permitting Process
150618	Bioretention	Pass	XB1965374	06/30/2027	BMP Added to List in FY24 In Design and Permitting Process

Table IV.D.1.d: SHA SWM Facilities for Rehabilitation Work Orders

SWM Facility Number	Facility Type	MDE Pass / Fail	Contract	Completion Commitment Date	Rehabilitation Comments
150619	Bioretention	Pass	XB1965374	06/30/2027	BMP Added to List in FY24. In Design and Permitting Process
150620	Bioretention	Pass	XB1965374	06/30/2027	BMP Added to List in FY24. In Design and Permitting Process
150621	Bioretention	Pass	XB1965374	06/30/2027	BMP Added to List in FY24. In Design and Permitting Process
150623	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
150680	Infiltration Trench	Removed		6/30/2027	Removed, by SHA Safety Improvement Project
150705	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
150706	Infiltration Trench	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
150749	Other	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
150750	Other	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
160008	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
160012	Infiltration Trench	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
160025	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
160053	Wet Pond	Fail		06/30/2028	BMP Added to List in FY24
160059	Wet Pond	Pass	XB1965374	06/30/2027	BMP Added to List in FY24. In Design and Permitting Process
160060	Infiltration Basin	Fail		06/30/2028	BMP Added to List in FY24
160061	Wet Pond	Pass	XB1965374	6/30/2027	In Design and Permitting Process.
160126	Infiltration Trench	Fail		6/30/2028	
160127	Wet Extended Detention Pond	Fail		6/30/2028	
160129	Infiltration Basin	Pass	XB1965374	6/30/2027	In Design and Permitting Process. Per Latest Inspection, BMP is Functioning as Designed
160131	Infiltration Trench	Fail	XB1965374	6/30/2027	In Design and Permitting Process

Table IV.D.1.d: SHA SWM Facilities for Rehabilitation Work Orders

SWM Facility Number	Facility Type	MDE Pass / Fail	Contract	Completion Commitment Date	Rehabilitation Comments
160136	Infiltration Trench	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
160149	Wet Pond	Pass	XB1965374	06/30/2027	BMP Added to List in FY24. In Design and Permitting Process
160151	Infiltration Trench	Pass	XB1965374	06/30/2027	BMP Added to List in FY24. In Design and Permitting Process
160173	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
160176	Dry Extended Detention Pond	Fail		6/30/2028	
160181	Infiltration Trench	Fail		6/30/2028	
160187	Wet Swale	Fail		6/30/2028	Redesign and Permitting Required[1]
160197	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
160203	Shallow Marsh	Fail		6/30/2028	
160211	Infiltration Trench	Fail		6/30/2028	
160218	Dry Pond	Fail		6/30/2028	
160224	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
160225	Infiltration Trench	Pass		9/30/2028	Per Latest Inspection, BMP is Functioning as Designed
160230	Infiltration Trench	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
160232	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
160246	Infiltration Trench	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
160247	Infiltration Trench	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
160250	Infiltration Trench	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
160301	Dry Pond	Fail		6/30/2028	
160305	Wet Pond	Fail	XB1965374	6/30/2027	In Design and Permitting Process
160378	Dry Pond	Fail		6/30/2028	Redesign and Permitting Required[1]
160402	Infiltration Trench	Fail		6/30/2028	
160408	Infiltration Trench	Fail		6/30/2028	Redesign and Permitting Required[1]
160427	Infiltration Trench	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
160429	Infiltration Trench	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed

Table IV.D.1.d: SHA SWM Facilities for Rehabilitation Work Orders

SWM Facility Number	Facility Type	MDE Pass / Fail	Contract	Completion Commitment Date	Rehabilitation Comments
160456	Wet Pond	Fail		06/30/2028	BMP Added to List in FY24
160477	Infiltration Basin	Fail		06/30/2028	BMP Added to List in FY24
160505	Wet Pond	Fail		6/30/2028	Redesign and Permitting Required[1]
160552	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
160601	Surface Sand Filter	Fail		06/30/2028	BMP Added to List in FY24
160662	Wet Pond	Fail		6/30/2028	
160732	Wet Pond	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
160747	Infiltration Basin	Fail		6/30/2028	Redesign and Permitting Required[1]
160748	Infiltration Basin	Fail		6/30/2028	
160801	Wet Extended Detention Pond	Pass		6/30/2028	Per Latest Inspection, BMP is Functioning as Designed
160806	Wet Pond	Fail		6/30/2028	
160867	Bio-Swale	Fail		06/30/2028	BMP Added to List in FY24
170048	Grass Swale	Fail		6/30/2028	
170056	Infiltration Trench	Fail		6/30/2028	
170061	Grass Swale	Fail		6/30/2028	
170090	Infiltration Trench	Fail		6/30/2028	
170096	Infiltration Basin	Fail		6/30/2028	
170208	Bio-Swale	Fail		06/30/2028	BMP Added to List in FY24
180007	Infiltration Trench	Fail		06/30/2028	BMP Added to List in FY24
180076	Dry Pond	Fail		6/30/2028	
180170	Infiltration Basin	Fail		06/30/2028	BMP Added to List in FY24
180172	Infiltration Basin	Fail		06/30/2028	BMP Added to List in FY24
210003	Dry Swale	Fail		6/30/2028	Redesign and Permitting Required[1]
210009	Infiltration Basin	Fail		6/30/2028	Redesign and Permitting Required[1]

Table IV.D.1.d: SHA SWM Facilities for Rehabilitation Work Orders

SWM Facility Number	Facility Type	MDE Pass / Fail	Contract	Completion Commitment Date	Rehabilitation Comments
210938	Bio-Swale	Fail		6/30/2028	
220162	Infiltration Trench	Fail		6/30/2028	
220163	Infiltration Trench	Fail		6/30/2028	
220164	Infiltration Trench	Fail		6/30/2028	
220166	Infiltration Trench	Fail		6/30/2028	
220167	Infiltration Trench	Fail		6/30/2028	
220174	Infiltration Trench	Fail		6/30/2028	
220182	Infiltration Trench	Fail		6/30/2028	
220183	Infiltration Trench	Fail		6/30/2028	
220184	Infiltration Trench	Fail		6/30/2028	

[1] Refers to sites that were either in design or had a design completed and now need full redesign and permitting due to the original work order exceeding stable shelf life. Issues such as erosion at a site may have increased in size and much of the design will need to be revised to account for these field changes. These designs will also need updates for compliance with the NPDES 20-CP permit and reevaluations for wetland, waterway, and tree impacts.

<u>Appendix C:</u> Illicit Discharge Detection and Elimination Program Summaries

Table IV.D.3.a below summarizes primary field screening efforts for the FY24 reporting period. In the MS4 Geodatabase – Part 1 submitted with this FY24 MS4 annual report, SHA has provided the applicable IDDE program information in the *IDDE Screening* table. In their June 21, 2024 comments following review of the SHA FY23 MS4 annual report, MDE indicated that the total number of records in the *IDDE Screening* table did not match the number of outfall screenings reported in Table IV.D.3.a within Appendix C to the FY23 MS4 annual report. Upon review, SHA identified seven (7) inspection records that were inadvertently excluded from the MS4 Geodatabase component of the SHA FY23 MS4 annual report submittal. The missing records have been incorporated into the *IDDE Screening* table of the MS4 Geodatabase – Part 1 submitted with this FY24 MS4 annual report. For all such records, the date of screening indicated is from the FY23 reporting period.

The SHA screens stormwater drainage infrastructure types other than structures that qualify as 'major' outfalls for illicit discharges (IDs) if said structures have been identified by the IDDE program as having a high potential to contribute pollutants to the SHA MS4. For screenings performed at these other structure types, there is no corresponding record in the *Outfall* feature class of the MS4 Geodatabase – Part 1 to reference so SHA has populated the 'MDE_OUTFALL_ID' data field, in the *IDDE Screening* table of the MS4 Geodatabase – Part 1, with a placeholder value.

Table IV.D.3.a: Primary Field Screening Summary

County	Number of Outfalls Field Screened FY24
Anne Arundel	1
Baltimore	119
Montgomery	1
Prince Georges	61
Totals	182

Table IV.D.3.b below summarizes information from the most recent quarterly facility inspection performed at each of the NPDES 20-SW permitted industrial site within the SHA MS4 Permit area. Included in the summary is a description of each issue identified during those inspections and the associated resolutions made by SHA during the FY24 reporting period.

Table IV.D.3.b: Summary of the Most Recent Quarterly Inspection for NPDES 20-SW Permitted Facilities

Facility Name	Quarter Number and Fiscal Year for Last Inspection	Date of Last Quarterly Inspection	Number of Issues Identified During QTR	Uploaded to Web-based Tracking (Yes or No)	Issue Details	Resolved? (Yes or No)	Comments
Cambridge	4th QTR 2024	4/11/2024	0	N/A	N/A	N/A	N/A
Salisbury	4th QTR 2024	4/23/2024	2	Yes	Storm Water/Material Storage- Storm Water Management Facilities Need Repair/Maintenance - On the south side of the facility, the stormwater inlet grate has structural issues and is beginning to collapse. This stormwater issue was brought to the attention of Resident Maintenance Engineer for correction.	No	Correction coordination of this incident and resulting compliance issue is being managed by District 1 & site management. This issue was reported to MDE's Industrial Stormwater Compliance Program on April 19, 2024. The shop received approval from the Office of Environmental Design to move forward with the project and it is out for bid with contractors.
	4th QTR 2024	4/23/2024		Yes	Storm Water/Material Storage- Erosion and Sediment Controls Not Adequate - The area behind the solar salt building and trailer is not draining properly. This area needs to be reconstructed with rip-rap stone to resume proper drainage.	No	Correction coordination of this incident and resulting compliance issue is being managed by District 1 & site management. An asphalt berm was installed at the front of the solar salt pole barn to prevent stormwater contact. This issue was reported to MDE's Industrial Stormwater Compliance Program on April 19, 2024. The shop received approval from the Office of Environmental Design to move forward with the project and it is out for bid with contractors.
Elkton	4th QTR 2024	4/15/2024	0	N/A	N/A	N/A	N/A

Table IV.D.3.b: Summary of the Most Recent Quarterly Inspection for NPDES 20-SW Permitted Facilities

Facility Name	Quarter Number and Fiscal Year for Last Inspection	Date of Last Quarterly Inspection	Number of Issues Identified During QTR	Uploaded to Web-based Tracking (Yes or No)	Issue Details	Resolved? (Yes or No)	Comments
Fairland	4th QTR 2024	4/4/2024	1	Yes	Storm Water/Material Storage- Storage Pile Management Problems - Sand needs to be pushed farther back into the overhang and sand outside of the storage building needs to be swept up.	Yes	The sand was cleaned up and pushed back into the storage overhang.
Gaithersburg	4th QTR 2024	4/24/2024	1	Yes	Storm Water/Material Storage- Quarterly Visual Monitoring was not completed for the 4th quarter of FY24.	Yes	The Shop was retrained on the requirement to complete quarterly visual monitoring. They were also reminded that they should complete quarterly visual monitoring early in the quarter to ensure capturing a qualifying rain event should there be drought conditions later in the quarter.
Laurel	4th QTR 2024	4/8/2024	4	Yes	Storm Water/Material Storage- Storage Pile Management Problems - Sand not completely in covered storage bin. Soil on lot in front of material storage bins.	Yes	The sand was pushed into the storage bin.
	4th QTR 2024	4/8/2024		Yes	Storm Water/Material Storage- Salt Storage Not Appropriate - Solar salt is escaping containment through weepholes in back on temporary dome next to salt dome. The salt needs to be stored completely in the dome.	Yes	The salt was swept up.
	4th QTR 2024	4/8/2024		Yes	Storm Water/Material Storage- Fueling Area Not Properly Maintained to Prevent Stormwater Pollution - Liquid is in spill buckets.	Yes	The Shop confirmed with the District Environmental Coordinator that the liquid was removed from the spill buckets.
	4th QTR 2024	4/8/2024		Yes	Storm Water/Material Storage- Floatable Debris Not Properly Contained - Trash is in the stormwater swale/pond area.	Yes	The trash was removed after the inspection.

Table IV.D.3.b: Summary of the Most Recent Quarterly Inspection for NPDES 20-SW Permitted Facilities

Facility Name	Quarter Number and Fiscal Year for Last Inspection	Date of Last Quarterly Inspection	Number of Issues Identified During QTR	Uploaded to Web-based Tracking (Yes or No)	Issue Details	Resolved? (Yes or No)	Comments
Upper Marlboro	4th QTR 2024	4/2/2024	3	Yes	Storm Water/Material Storage- Floatable Debris Not Properly Contained - Garbage dumped behind shop dumpsters again. Facility personnel must clean up this debris to prevent it from leaving the site.	No	The facility has been notified to remove the garbage from behind the shop dumpsters.
	4th QTR 2024	4/2/2024		Yes	Storm Water/Material Storage- Fueling Area Not Properly Maintained to Prevent Stormwater Pollution - Liquid is present in the spill buckets.	No	Issue was identified during January 2024 quarterly inspection. Upon follow up inspection in April 2024, the issue had not been resolved. The facility has been notified after each inspection to remove the liquid from the spill buckets.
	4th QTR 2024	4/2/2024		Yes	Storm Water/Material Storage- Storm Water Management Facilities Not Properly Maintained - Stormwater structure 160748 is failing and rated as a "D" by Highway Hydraulics Division (HHD) during CY 2020. Because the structure is not draining as designed, 20-SW quarterly visual monitoring sampling location #2 was slightly shifted to capture sheet flow drainage from the structure during qualifying rain/snow events. Stormwater structure 160747 is failing and rated as a "D" by HHD during the 2023 triannual inspection. This structure is an infiltrating basin. The HHD 2023 inspection notes indicate that there is evidence of significant long-term ponding.	No	The failing structure was reported to MDE's Industrial Stormwater Compliance Program on July 8, 2024 to notify MDE of the intent to exceed 45 days to repair stormwater controls as required by 20-SW. ECD also met with HHD in 3rd QTR FY24 and 4th QTR FY24 to ensure that the identified failing structural BMP is added to the que for upcoming repair. HHD stated that due to budget cuts, there is not funding available to repair the structures in the immediate future.
Golden Ring	4th QTR 2024	4/10/2024	0	N/A	N/A	N/A	N/A

Table IV.D.3.b: Summary of the Most Recent Quarterly Inspection for NPDES 20-SW Permitted Facilities

Facility Name	Quarter Number and Fiscal Year for Last Inspection	Date of Last Quarterly Inspection	Number of Issues Identified During QTR	Uploaded to Web-based Tracking (Yes or No)	Issue Details	Resolved? (Yes or No)	Comments
Hereford	4th QTR 2024	4/3/2024	0	N/A	N/A	N/A	N/A
Owings Mills	4th QTR 2024	4/11/2024	0	N/A	N/A	N/A	N/A
Churchville	4th QTR 2024	4/4/2023	0	N/A	N/A	N/A	N/A
Annapolis	4th QTR 2024	5/8/2024	1	Yes	Storm Water/Material Storage- Fueling Area Not Properly Maintained to Prevent Stormwater Pollution - Liquid is present in the spill buckets.	No	The facility has been notified to remove the liquid from the spill buckets.
Glen Burnie	4th QTR 2024	4/15/2024	3	Yes	Storm Water/Material Storage- Storage Pile Management Problems - Soil pile is not tarped. Sandbag broken in front of supply room door. Spill control in fuel island.	Yes	The soil pile and sandbag have been removed.
	4th QTR 2024	4/15/2024		Yes	Storm Water/Material Storage- Fueling Area Not Properly Maintained to Prevent Stormwater Pollution - Liquid in spill buckets.	No	The facility has been notified to remove the liquid from the spill buckets.
	4th QTR 2024	4/15/2024		Yes	Storm Water/Material Storage- Floatable Debris Not Properly Contained - Straw bale in swale. Trash in swale. Debris in lower yard as well as near overfill alarm.	No	The facility has been notified to remove the straw bale, clean up trash in the swale, and clean up the debris.
Hanover	4th QTR 2024	5/2/2024	1	Yes	Storm Water/Material Storage- Quarterly Visual Monitoring was not completed for the 4th quarter of FY24.	Yes	The Shop was retrained on the requirement to complete quarterly visual monitoring. They were also reminded that they should complete quarterly visual monitoring early in the quarter to ensure capturing a qualifying rain event should there be drought conditions later in the quarter.
LaPlata	4th QTR 2024	4/9/2024	1	Yes	Storm Water/Material Storage- Brine Tank and/or Maker Problems - Brine storage tank fitting identified as having a slow leak.	Yes	Fitting resealed by the Shop Chief and is now liquid tight.

Table IV.D.3.b: Summary of the Most Recent Quarterly Inspection for NPDES 20-SW Permitted Facilities

Facility Name	Quarter Number and Fiscal Year for Last Inspection	Date of Last Quarterly Inspection	Number of Issues Identified During QTR	Uploaded to Web-based Tracking (Yes or No)	Issue Details	Resolved? (Yes or No)	Comments
Hagerstown	4th QTR 2024	4/11/2024	1	Yes	Storm Water/Material Storage- Storage Pile Management Problems - sand pile needs to be completely covered	Yes	The pile was tarped following the inspection.
Frederick	4th QTR 2024	4/9/2024	0	N/A	N/A	N/A	N/A
Thurmont	4th QTR 2024	4/9/2024	0	N/A	N/A	N/A	N/A
Dayton	4th QTR 2024	4/29/2024	0	N/A	N/A	N/A	N/A
Westminster	4th QTR 2024	4/10/2024	1	Yes	Storm Water/Material Storage- Storage Pile Management Problems - stone dust from training on the lot needs to be cleaned up before the next storm event.	Yes	The lot was cleaned up the day of the inspection.

Table IV.D.3.d below summarizes the IDs that required follow-up investigations during the FY23 and FY24 periods. SHA performs a follow-up investigation only if dry weather flow is observed during the primary field screening and a subsequent follow-up testing confirms that one or more pollutant parameters were exceeded during both testing events.

Table IV.D.3.d: Illicit Discharges Requiring Further Investigation During Reporting Period

Case No.	County	SHA Structure or BMP#	Date of ID	Potential Pollutant	Status
12 – From FY22	Montgomery	1501582.001	6/7/2022	Copper	Investigation initiated in FY22 and continued into FY23 and FY24. Based on lab results from FY23 showing no concentration of copper, the case was closed. The case was reopened in FY24 for further investigation suspecting a false-positive reading from field screening. Upon further research, investigation, and laboratory testing in FY24 the case is closed. Narrative below includes follow-up investigation performed, and outcomes identified during FY23 and FY24.

Table IV.D.3.d: Illicit Discharges Requiring Further Investigation During Reporting Period

Case No.	County	SHA Structure or BMP#	Date of ID	Potential Pollutant	Status
1 – FY24	Baltimore	0300677.001	8/22/2023	Copper	Investigation initiated 8/22/2023. Case closed following investigation & laboratory testing. Narrative below includes investigation procedure and outcomes.
2 – FY24	Anne Arundel	0200273.001	3/26/024	Detergent	Investigation initiated 3/26/2024. Anne Arundel County issued a Correction Notice to cease operations. Anne Arundel County performed inspection on 5/20/2024 and indicates issues were resolved. Case is considered closed.

No additional IDs were reported by citizens or investigated by SHA during the FY24 reporting period. The following updates summarize the jurisdiction contacts/resolution schedule for ID cases designated as “open” or “reopened” in FY24 and/or in previously submitted MS4 annual reports. Updates below are numbered in alignment with entries in the “Case No.” column of Table IV.D.3.d above.

12 - From FY22. During FY22 primary screenings, structure #1501582.001; located along Connecticut Avenue southbound in Kensington, Maryland; was determined to have an ID. This structure discharges into Rock Creek a Use III waterway impaired by nutrients (1996 listing), suspended sediments (1996 listing), fecal bacteria (2002 listing) and evidence of impacts to biological communities (2002 listing). A significant amount of dry weather flow was found to be discharging from the structure at the time of inspection. Field testing performed on June 2, 2022 determined the concentration of copper to be 0.31 mg/L which exceeds the established limit of 0.21 mg/L. Inspectors intended to return to the site to perform a follow-up inspection on June 3, 2022. However, a significant rain event occurred during the early morning hours on June 3, 2022, preventing the required follow-up confirmatory inspection, which must be conducted during dry weather.

Another initial primary screening occurred on June 7, 2022. Field testing yielded elevated copper concentration (0.23 mg/L) that exceeded the established limit. The follow-up confirmatory inspection, which must be conducted during dry weather, was again prevented by an unforeseen rain event immediately following primary screening on June 7, 2022. Because two copper limit exceedances were recorded during separate primary inspections, a decision was made to manage this site as an ID. Structure #1501582.001 was revisited by MES field inspectors on June 22, 2022. Field staff again found high flow during dry weather conditions with copper levels exceeding established program limits at the outfall. State stormwater asset information was gathered and sent to MES staff to facilitate upstream inspection of multiple stormwater collection line segments. MES field inspectors began isolating segments of this large stormwater collection system through structure inspections. MES identified two structures that directly linked to the upstream structure during dry flow conditions with an active flow at the downstream structure. To assist with identifying the source of the dry weather flow, a CCTV investigation was performed through the upstream storm drain conveyance system. The results of the CCTV investigation identified that the source of dry weather flow is groundwater infiltration through the concrete pipe section and at the connections with storm drain manholes.

SHA screened the site again on February 20, 2023 and found dry weather flow conditions with a concentration of copper to be 0.27 mg/L which exceeds the established limit. A grab sample was submitted to a lab for analysis on February 20, 2023. Lab analysis results from February 24, 2023 indicated zero concentrations of copper. SHA believes the elevated copper levels are isolated to the ground water infiltration. The ID site remained open and was scheduled for reinspection during FY24. SHA screened the site on December 6 and December 14, 2023 and found dry weather flow conditions with a concentration of copper to be 1.22 mg/L and 0.18 mg/L which exceeds the established limit so a grab sample was submitted to the lab for analysis. Lab analysis results from December 21, 2023 indicated zero concentrations of copper. Unsure of the reason for a false positive of copper with the field screening, SHA conducted further investigation related to the hardware and sampling techniques being utilized in the field. In accordance with conditions in Part VII.C of the MS4 Permit, SHA performed the following laboratory controls and quality assurance procedures:

1. The SHA confirmed that the proper sampling equipment and chain of custody was being utilized between the field samplers and laboratory. SHA confirmed that field teams were utilizing the correct clean glass bottles to collect the samples, that the proper chemical treatment was being utilized and provided from the laboratory, and that the laboratory was sampling within the correct timeframes.
2. The SHA performed outreach to the copper sampling hardware vendor (Hach) to confirm that the sampling equipment (Hach Handheld DR900 Multiparameter Colorimeter, Test #135) and workflow for completing the copper screening were being performed correctly. SHA confirmed that field teams were following the proper sampling workflows.
    a. Hach recommended a check to ensure that the hardware was calibrated correctly by running test samples of copper of a known concentration. Since copper concentrations were being detected above the allowable limits by two different field crews using a DR900 hardware unit, SHA and field teams ran a standard concentration on both sets of hardware. It was determined that both sets of hardware were calibrated correctly.

b. Hach recommended field crews utilize the Interference Sampling Method versus the standard sampling methodology outlined in the hardware's operating procedures (https://images.hach.com/asset-get.download.jsa?code=55593, DOC316.53.01039, page 5, Interferences). The Interference Sampling Method screens for free copper and total dissolved copper, resulting in the mg/L of complexed copper. Two field teams completed the screening using the Interference Sampling Method on two different hardware/sampling units. The results from the field screening performed on May 22, 2024 concluded 0.00 mg/L of copper. Based on zero concentrations using the Interference Sampling Method and lab results, SHA considers this case closed.

1 - FY24. During FY24 primary screenings, structure #0300677.001; located at the intersection of Security Blvd (MD 122) and Woodlawn Drive in Woodlawn, Maryland; was determined to have an ID. The outfall is connected to a cross culvert under the intersection that discharges into Dead Run. Field teams identified dry weather flow through the upstream conveyance and structures along MD 122 at the time of inspection. The source of the dry weather flow appears to be from offsite County right-of-way. Field testing performed on August 22 and August 23, 2023 determined the concentration of copper to be 2.27 mg/L and 2.43 mg/L which exceeds the established limit of 0.21 mg/L. Field testing performed on September 23, 2023 by a second field team determined a concentration of copper to 3.17 mg/L. A grab sample was submitted to a lab for analysis on September 23, 2023. Lab analysis results indicated 0.0013 mg/L of copper. Based on the elevated copper concentrations from the field, the lab results not identifying copper concentrations, and lessons learned from case #**12 - From 2022** (see summary for above**)** false positive results; SHA decided to sample the dry weather flow utilizing the Interference Sampling Method. A site screening was performed on May 22, 2024 utilizing the Interference Sampling Method which concluded 0.00 mg/L of copper. Based on zero concentrations using the Interference Sampling Method and lab results, SHA considers this case closed.

2 - FY24. On February 25, 2024, the IDDE team was made aware of a potential ID from another SHA project. It was observed that dry weather flow was discharging from structure #0200273.001 into a tributary of Picture Spring Branch located on westbound Annapolis Road (MD 175) between 1200 Annapolis Road and 1144 Annapolis Road in Odenton, Maryland. Upon field inspection and screening performed March 26, 2024 it was found that detergents were 1.36 mg/L which exceeds the established limit of < 0.50 mg/L. The sampling results did not indicate pH, phenols, copper, or chlorine were outside the allowable limits. Flow was traced to an upstream storm drain structure (0200273.011) and it was identified that upstream structures contained standing water. The field team suspected that an adjacent car wash is the source of the flow. Although flow was not identified during the inspection due to inactivity at the car wash, there is a trench drain at the back of the car wash that ties into the Anne Arundel storm drain systems that ties into SHA right-of-way. It was suspected that the high detergent concentration was a result of car wash discharge. On March 27, 2024 SHA notified Anne Arundel County Department of Inspections and Permits of the potential ID source. On March 28, 2024 Anne Arundel County notified SHA that the County will send a Correction Notice to the car wash to cease operations until the containment/reclaim system is serviced and will inform the business to make sure customer's vehicles are centered over the self-serve bays to limit sheet flow. Anne Arundel County Inspections and Permits office performed a follow-up inspection on May 20, 2024 and noted that the car wash had cleaned all underground washwater storage tanks and the reclamation system had been serviced. All systems were observed to be working functionally. SHA considers this case closed.

The SHA IDDE program was implemented in compliance with associated permit conditions in Part IV.D.3 of the MS4 Permit throughout FY23 so modifications were not required during the FY24 reporting period; however, SHA performed the following activities in FY24 to enhance the effectiveness of the SHA IDDE program:

- The SHA researched potential factors contributing to false positive results from copper testing in the field. SHA investigations determined that utilizing Hach's Interference Sampling Method when testing for copper in the field (https://images.hach.com/asset-get.download.jsa?code=55593, DOC316.53.01039, page 5, Interferences) can create greater confidence in the results. This new testing standard has been incorporated into the SHA IDDE program documentation and associated training.

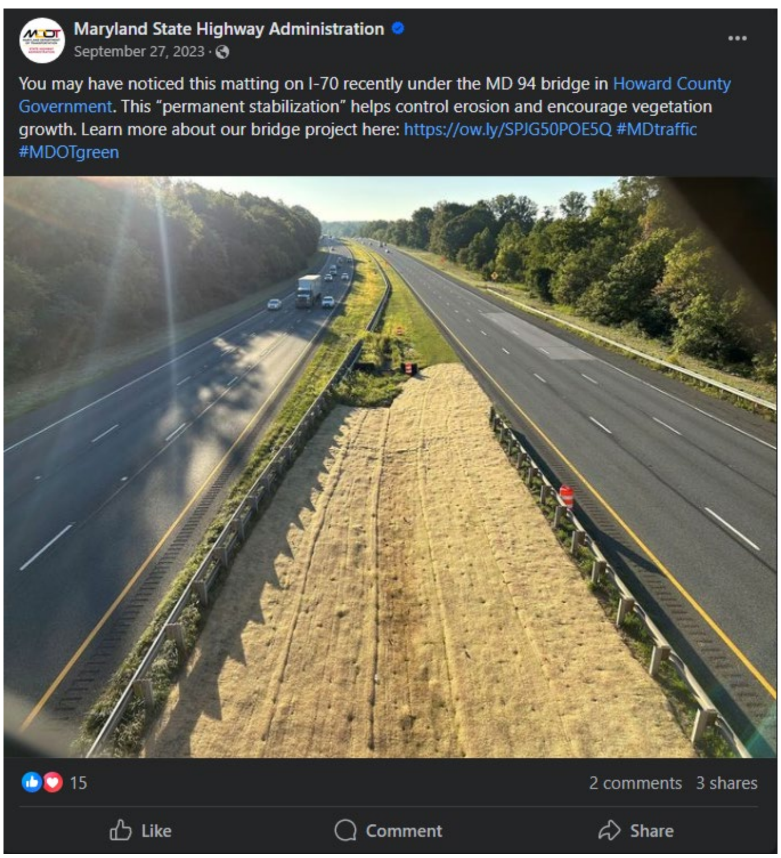
- The SHA worked to develop enhanced documentation standards for identified or reported ID, spill, and dumping cases to improve case tracking and resolution efficiencies.

Appendix D: Public Education and Outreach Program Report

In accordance with Part V.A.1.d of the MS4 Permit, SHA prepared the following summary describing its public education programs implemented during the FY24 reporting period in accordance with conditions in Parts IV.D.4 and IV.D.6 of the MS4 Permit.

Social Media

The SHA leveraged social media platforms Facebook, Twitter, LinkedIn and Instagram in FY24 to promote and encourage participation in SHA's various environmental education initiatives. Posts included, but were not limited to, information about SHA's litter clean-ups, flood awareness, and stormwater management efforts. Examples of SHA FY24 social media posts are provided below.



Keep Maryland Beautiful Grant Program

Maryland Environmental Trust awarded 18 *Keep Maryland Beautiful* (KMB) grants in 2024 to support environmental education, community cleanup, and beautification projects throughout Maryland. Three different grants were offered to help volunteer and nonprofit groups, communities, and land trusts to support their environmental education, litter removal, citizen stewardship, and natural resource management projects in urban and rural areas. Funding for the KMB grants program is provided by the Maryland Environmental Trust (MET) in partnership with the Maryland Department of Transportation (MDOT), Maryland Department of Agriculture (MDA), and the Chesapeake Bay Trust. In FY24, KMB Grants totaling $236,276 were awarded to ten counties. More information regarding KMB grants and the FY24 projects can be found online at the following web addresses:

https://news.maryland.gov/dnr/2024/03/20/2024-keep-maryland-beautiful-grants-total-236276/

Adopt a Highway

Since the Adopt-A-Highway Program started in 1989, MDOT SHA has partnered with more than 120,000 Marylanders who have helped remove litter over 15,000 miles of roadside. Additional information can be found at the following web address:

https://roads.maryland.gov/mdotsha/pages/Index.aspx?PageId=11

Sponsor a Highway

The SHA Corporate Sponsorship Program allows companies to sponsor sections of Maryland roadways. The Sponsor enters into an agreement with a 'Maintenance Provider' for litter and debris removal from the sponsored segment. The maintenance providers remove trash from the sponsored segments of roadways. Additional information can be found at the following web address:

https://roads.maryland.gov/mdotsha/pages/Index.aspx?PageId=192

Educational Resources, Pollution Control

In addition to implementing large scale projects to capture pollutants from roadways and impervious areas, SHA provides resources to members of the transportation community interested in reducing pollutants. These resources include information on proper erosion and sediment control, proper disposal of vehicle fluids, storm drain stenciling, and more. Additional information can be found at the following web address:

https://roads.maryland.gov/mdotsha/pages/index.aspx?PageId=48

Bike to Work Day/Week

The SHA conducted 'Bike to Work Week' from May 13 through May 19, 2024 with May 17, 2024 designated as 'Bike to Work Day.' This program seeks to promote bicycling as a healthy commuting option and to improve public awareness of associated safety and environmental benefits. Pit stops along the designated bicycle paths, including one outside SHA Headquarters in Baltimore City, offered refreshments and water bottles. Participants were able to sign up to receive notifications for Bike to Work Week and to receive updates on future active transportation opportunities in the Baltimore Region via the following website:

https://biketoworkmd.com/

SHA Bike to Work Day booths welcome riders committed to health, environment

In Hanover, SHA Equal Employment Officer Carey Edwards, right, enjoyed some refreshment after a ride on the BWI Trail at this year's Bike to Work Day event.

Early forecasts threatened rain but the weather broke in favor of cyclists on Bike to Work Day, Friday, May 17, when commuters from the State Highway Administration's headquarters in Baltimore and the Hanover Complex in Anne Arundel County opted to ...

Continued

SHA Equal Employment Officer post ride

Lieutenant Governor Miller (right) participating
https://youtu.be/QHkTHnOP7rw?si=NM-x9rxHL-1WyBqv

National Pollinator Month

Pollinator habitat efforts across the nation are highlighted during National Pollinator Week that runs June 17-23, 2024. In June of 2024, the State Highway Administration installed several new pollinator sites to establish native meadows and demonstration gardens as part of its Pollinator Habitat Plan. The SHA crews have built demonstration gardens that attract pollinators and serve to educate SHA staff, stakeholders, and customers about the importance of beneficial insects and birds. These demonstration gardens have been installed at the SHA Headquarters building in Baltimore City, the Hanover Complex, and District Offices located in Anne Arundel, Baltimore, Frederick, and Prince George's counties.

The SHA installed more than 6 acres of native meadows along roadsides and medians in Queen Anne's, Anne Arundel, and Howard counties that will be visible to those traveling along our roadways. The sites can be found along the following roadway sections:

- US 50 westbound, north of MD 213 in Queen Anne's County
- MD 3 (Crain Highway) southbound at the MD 32 (Patuxent Freeway) interchange in Anne Arundel County
- I-70 median between St. John's Lane and Bethany Lane, west of US 29 intersection in Howard County.

SHA installed pollinator garden along I-70 South Mountain Welcome Center in Frederick County

SHA maintains a public education webpage for its pollinator habitat program/plan that includes educational videos, among other resources, for anyone interested in learning more about the SHA program/plan and how they can help. This information can be found at the following web address:

https://roads.maryland.gov/mdotsha/pages/index.aspx?PageId=344

Training and Education Activities

The SHA organized trainings and presented at conferences on topics related to stormwater pollution during FY24. The following is a list of some of the trainings and conferences with corresponding descriptions and dates:

- Storm Drain Inventory Training. On August 21, 2023, SHA collaborated to train consultant partners to perform storm drain inventory updates via FieldMaps and discussed procedures for Maintenance of Traffic, safety, and rules for inventorying the SHA storm drain system.

- Drainage Management Application Training. On February 04, 2024, SHA collaborated to train consultant partners to use a new application that will replace the current 'HyInfo' system used to track and manage drainage investigations and urgent drainage projects.

- ACEC/MD Environmental Spring Forum. On May 15, 2024, SHA presented to attending engineering consultants and State employees the priorities and challenges in delivering environmental programs. Presentations included ones for *Maryland's Climate Pollution Reduction Plan*, *Creating Resilient Infrastructure to Meet Climate Goals at SHA*, and *Solutions for Financing Resilience Hazard Mitigation Measures*.

- ACEC/MW 2024 Chesapeake Bay TMDL Symposium. On June 18, 2024, SHA presented to attending engineering consultants and various MS4 partners and participated in a panel discussion along with the Virginia Department of Transportation. Topics included restoration progress, approaches to addressing new MS4 permit conditions, and upcoming projects.

Community Outreach

During FY24, SHA launched numerous projects to support its mission/goals such as enhancing safety and accessibility for motorists, pedestrians, and bicyclists and delivering stormwater management facility and drainage improvements. To inform the public and engage stakeholders during project planning and construction, SHA reached out to individual communities to communicate details of the upcoming work in their areas and to solicit their feedback. Attached to this Appendix D are two examples of the project information community outreach fliers SHA distributed in FY24.

MARYLAND DEPARTMENT OF TRANSPORTATION

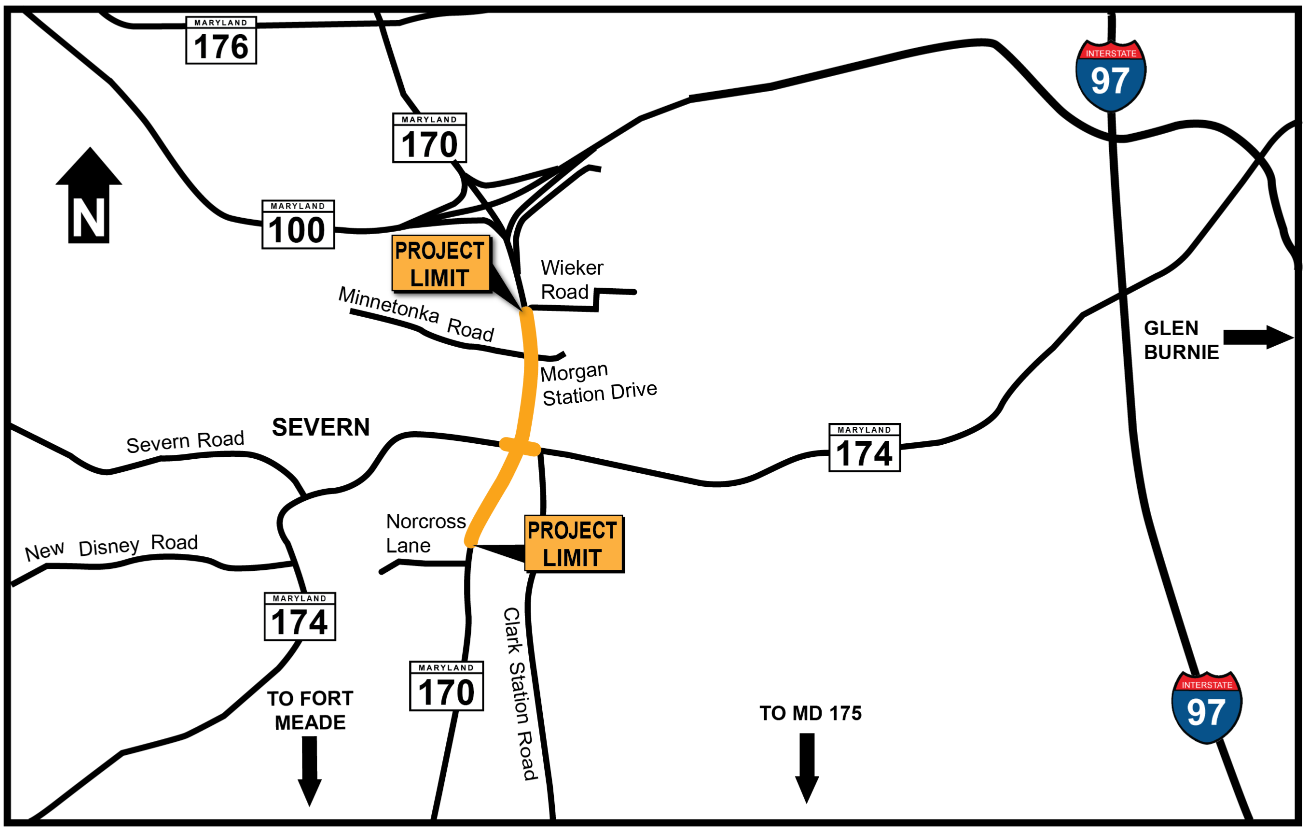
STATE HIGHWAY ADMINISTRATION

MD 170 (Telegraph Road) Roadway Improvement Project

Design Phase Moves Forward / Public Open House Planned for June 27

The Maryland Department of Transportation State Highway Administration is moving forward with the design phase to improve MD 170 (Telegraph Road) from Norcross Lane to Wieker Road in Anne Arundel County. This project is funded for design and right-of-way acquisition. You are invited to an open house Thursday, June 27 at Meade Heights Elementary School, Fort Meade, to view and offer feedback on the proposed design plan.

This project will provide an additional northbound and southbound through-lane along MD 170 from Norcross Lane to Wieker Road. The additional through lanes are designed to improve traffic flow. A raised median will be included to control left-turn movements.



Project Details

Roadway widening is required on both sides of MD 170 to accommodate the additional through lanes.
Other improvements include:

- improved traffic signal at the MD 170 and MD 174 intersection,
- additional left-turn lanes at MD 170 and Minnetonka Road/Morgan Station Drive,
- drainage improvements,
- updated stormwater management facilities,
- pedestrian and bicycle compatibility improvements (sidewalks for pedestrians and additional pavement width for bicyclists),
- utility relocations,
- access restrictions between MD 170 southbound and Old Donaldson Avenue and
- roadway resurfacing.

Next Steps

Subsequent phases, including right-of-way acquisition, utility relocation and construction, will proceed as design progresses and funding becomes available.

What to Expect

State Highway Administration representatives will be in the area during the next few months to dig test holes, survey and locate underground utilities. If there is a need to enter or perform work on your property, you will receive a notification letter in the mail with additional information.

Attend the Public Open House

The State Highway Administration will hold a public open house, 5 – 7 p.m. Thursday, June 27, 2024, at Meade Heights Elementary School, 1925 Reece Road, Fort Meade, to show design plans for the MD 170 project. The open house will provide attendees an opportunity to view project details on maps and displays. State Highway Administration representatives will be available to listen to your feedback and answer project-related questions. This information will be used to improve and advance project development. There will be no formal presentation. You may arrive at any time during the open house hours and walk through the display area at your own pace.

Request for Assistance

The Maryland Relay Service can assist teletype users at 7-1-1. Persons requiring translation assistance should send an email to: SHATitleVI@mdot.maryland.gov. Please indicate the desired language in the subject line.

Maryland Relay
Dial 7-1-1

Chinese:
需要翻译协助的人员请发送电子邮件至:
shatitleVI@mdot.maryland.gov 请在主题行中注明所需翻译语言。

French:
Les personnes ayant besoin d'une assistance à la traduction doivent envoyer un courriel à: shatitleVI@mdot.maryland.gov. Veuillez indiquer la langue souhaitée dans la ligne d'objet.

Korean:
통역 서비스 요청은 shatitleVI@mdot.maryland.gov 로 이메일을 보내주십시오. 제목에 도움이 필요한 언어를 명시해주십시오.

Spanish:
Las personas que requieran asistencia de traducción deben enviar un correo electrónico a: shatitleVI@mdot.maryland.gov. Indique el idioma de preferencia en el asunto.

MD 170 (Telegraph Road) Roadway Improvement Project

For More Information

Gina Goettler, Project Manager
Phone: 410-841-1047
Toll-Free: 1-800-331-5603
Email: GGoettler@mdot.maryland.gov

Kellie Boulware, Community Liaison
Phone: 410-841-1020
Toll-Free: 1-800-331-5603
Email: KBoulware@mdot.maryland.gov

Maryland Department of Transportation
State Highway Administration
District 5 Office
138 Defense Highway
Annapolis, MD 21401

Find Us on the Web

@MDSHA
@MDOTSHA
MDStateHighwayAdmin
MarylandStateHighwayAdmin

For information on this project, please visit
https://bit.ly/MDOTSHA-MD170-Wieker-Rd-to-Norcross-Ln
You may also use the QR code below.

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

Maryland Department of Transportation
State Highway Administration
District 5 Office
138 Defense Highway
Annapolis, MD 21401

ATTEND THE PUBLIC OPEN HOUSE
THURSDAY, JUNE 27, 2024
5 – 7 p.m.

Meade Heights Elementary School
1925 Reece Road
Fort Meade, MD 20755

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

MD 6 - La Plata Streetscape Project

Design Phase Moves Forward for La Plata Public Open House Planned for June 17

The Maryland Department of Transportation State Highway Administration, in collaboration with the Town of La Plata, is advancing a streetscape project along MD 6 (Charles Street) from US 301 to Willow Lane, through downtown La Plata in Charles County. Since the last public meeting on May 17, 2023, SHA has developed a design that incorporates the feedback provided by the community to improve the road consistent with its function as downtown La Plata's Main Street. The project is fully funded for design and is expected to reach the 65% design completion milestone by fall 2025.

Project Overview

The purpose of the project is to address the safety and accessibility needs along MD 6 while improving access to businesses, health care and other services within the project limits. Additionally, the project will provide landscape treatments to enhance the downtown character of La Plata. The scope of the project includes:

- constructing a dog-bone shaped roundabout at Maple Avenue;
- constructing a mini roundabout at Oak Avenue;
- installing pedestrian signals, new sidewalks, mountable medians (that provide accessibility for emergency vehicles) and crosswalk ramps to meet Americans with Disability Act (ADA) compliance;
- providing stormwater management and drainage improvements and
- providing landscape enhancements, including trees along the street and plaza area treatments.

You are Invited to Attend a Public Open House.

The State Highway Administration will hold a public open house to show design plans for the MD 6 La Plata Streetscape Project **5-7 p.m. Monday, June 17, 2024, at La Plata Town Hall, 305 Queen Anne St., La Plata**. The project team will update the public on the current design, seek additional community input and outline the next steps in the project development process. Attendees will have an opportunity to view design details. Maps and displays will highlight the proposed improvements and project representatives will be available to listen to your feedback and answer questions. This information may be used to improve and advance project development. There will be no formal presentation. You may arrive at any time during the open house hours and walk through the display area at your own pace.

For More Information

For additional information about the MD 6 La Plata Streetscape Project, please visit the Project Portal at: **https://bit.ly/MDOTSHA-MD6-US301-to- Willow-Ln**. You may also use the QR code shown below.

For questions about theMD 6 La Plata Streetscape Project, please contact:

Sotonye Ikiriko, D.Eng., Project Manager
Maryland Department of Transportation
State Highway Administration
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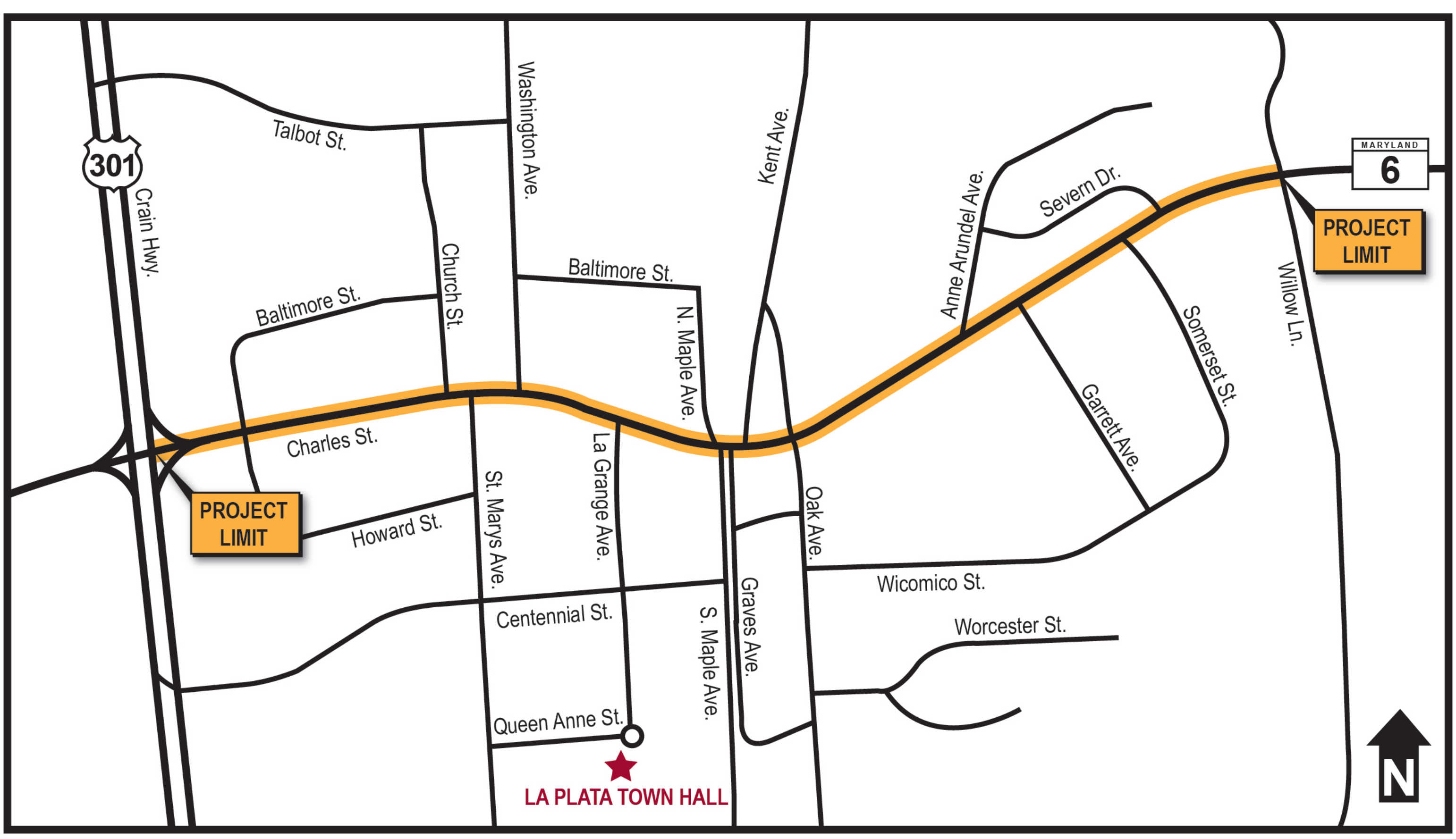

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MDOT MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

MD 6 - La Plata Streetscape Project

ATTEND THE PUBLIC OPEN HOUSE!

WHEN

Monday, June 17, 2024
5 - 7 p.m.

WHERE

La Plata Town Hall
305 Queen Anne St.
La Plata, MD 20646

<u>Appendix E:</u> TMDL Assessment Report

The SHA has prepared this FY24 TMDL Assessment Report with tables in accordance with conditions in Part IV.E.5 of the MS4 Permit. **Table V.A.1.e**, **Parts 1** and **2**, are provided below in accordance with conditions in Parts IV.E.5.a, IV.E.5.b, and V.A.1.e of the MS4 Permit. These tables present adjusted pollutant load reduction targets and FY24 progress toward attainment of stormwater wasteload allocations (WLAs) for all nutrient, sediment, and trash TMDLs. Progress toward attainment of benchmarks and applicable WLAs developed under EPA approved TMDLs is also documented in the *Chesapeake Bay Progress* and *Local TMDL Progress* tables of the MS4 Geodatabase – Part 1 submitted with the FY24 MS4 Annual Report.

The SHA adaptively manages its Coordinated TMDL Implementation Plan through prompt review and incorporation of new regulatory guidance and progress modeling tools, rigorous tracking of restoration needs by watershed, and continuous investigation for new opportunities to implement effective BMPs and to collaborate with private and public sector partners. The plan is accessible online at the following web address:

https://roads.maryland.gov/mdotsha/pages/index.aspx?PageId=336

Nutrient and Sediment TMDLs

In FY24, SHA used its updated Automated Modeling Tool, approved for use by MDE in FY23, to model loads and load reductions for all nutrient and sediment TMDLs with WLA requirements. Target and progress load reduction amounts reported by SHA in this Appendix and in the MS4 Geodatabase – Part 1 comply with guidance provided by MDE in its July 30, 2021 comments that stated credit must be temporarily removed for any 'failed' BMPs until proper performance is attained and verified. Credit for 511 restoration BMPs was temporarily or permanently removed from SHA credit accounting in FY24. SHA modeled load reduction targets are also adjusted for BMPs built prior to the 'baseline year' established for a given 8-digit watershed TMDL that are temporarily or permanently removed from the portfolio.

Table V.A.1.e - Part 1: Progress Toward Attainment of Applicable Nutrient and Sediment WLAs Developed Under EPA Approved TMDLs

Watershed Name	County	Pollutant	FY24 Progress CBP WM P6		
			SHA Reduction Target	Reduction Achieved	% Total Reduction Target Achieved
Chesapeake Bay Watershed TMDL WLAs					
Chesapeake Bay	MS4-Wide	Nitrogen	N/A[1]	34,523	N/A[1]
		Phosphorus	N/A[1]	11,881	N/A[1]
Local 8-digit Watershed TMDL WLAs					
Anacostia River – Nontidal[2]	MO, PG	Nitrogen	34,789	909	2.6%
		Phosphorus	4,453	328	7.4%
		Sediment	13,438,034	575,197	4.3%
Anacostia River – Tidal[2]	PG	Nitrogen	2,009	0	0.0%

Table V.A.1.e - Part 1: Progress Toward Attainment of Applicable Nutrient and Sediment WLAs Developed Under EPA Approved TMDLs

Watershed Name	County	Pollutant	FY24 Progress CBP WM P6		
			SHA Reduction Target	Reduction Achieved	% Total Reduction Target Achieved
		Phosphorus	255	0	0.0%
		Sediment	845,678	0	0.0%
Antietam Creek	WA	Phosphorus	801	169	21.1%
		Sediment	4,299,183	296,660	6.9%
Baltimore Harbor Non-Tidal	AA, BA	Sediment	2,437,635	214,712	8.8%
Baltimore Harbor Tidal [3]	AA, BA, CR, HO	Nitrogen	20,510	4,697	22.9%
Baltimore Harbor Tidal [3]	AA, BA, CR, HO	Phosphorus	2,044	929	45.4%
Bynum Run	HA	Sediment	301,858	56,775	18.8%
Cabin John Creek	MO	Sediment	892,341	1,917,172	214.8%
Catoctin Creek	FR	Phosphorus	198	459	231.6%
		Sediment	2,367,249	973,723	41.1%
Conococheague Creek	WA	Sediment	1,040,641	67,737	6.5%
Double Pipe Creek	CR, FR	Phosphorus	1,093	44	4.0%
		Sediment	1,438,291	43,545	3.0%
Gwynns Falls	BA	Sediment	1,742,178	38,980	2.2%
Jones Falls	BA	Sediment	956,886	20,275	2.1%
Liberty Reservoir	BA, CR	Phosphorus	1,287	249	19.3%
		Sediment	3,690,152	620,474	16.8%
Little Patuxent River	AA, HO	Sediment	4,287,828	3,628,816	84.6%
Loch Raven Reservoir	BA, CR, HA	Phosphorus	374	861	230.2%
Lower Gunpowder Falls	BA	Sediment	912,887	1,327,268	145.4%
Lower Monocacy River	CR, FR, MO	Phosphorus	1,803	1,665	92.3%
Lower Monocacy River[2]	FR, MO	Sediment	7,617,491	1,958,294	25.7%
Marsh Run	WA	Sediment	298,425	28,235	9.5%
Mattawoman Creek	CH, PG	Nitrogen	7,656	353	4.6%
		Phosphorus	1,171	76	6.5%
Non-Tidal Back River	BA	Nitrogen	2,010	336	16.7%
		Phosphorus	382	120	31.6%

Table V.A.1.e - Part 1: Progress Toward Attainment of Applicable Nutrient and Sediment WLAs Developed Under EPA Approved TMDLs

Watershed Name	County	Pollutant	FY24 Progress CBP WM P6		
			SHA Reduction Target	Reduction Achieved	% Total Reduction Target Achieved
		Sediment	3,150,529	256,805	8.2%
Other West Chesapeake	AA	Sediment	380,751	0	0.0%
Patapsco River LN Branch	AA, BA, HO	Sediment	2,778,049	1,541,140	55.5%
Patuxent River Lower	AA, CH, PG	Sediment	1,145,035	37,459	3.3%
Patuxent River Middle	AA, PG	Sediment	1,615,191	84,502	5.2%
Patuxent River Upper	AA, HO, PG	Sediment	660,532	75,455	11.4%
Piscataway Creek	PG	Sediment	1,685,725	633,712	37.6%
Port Tobacco River	CH	Sediment	599,461	37,407	6.2%
Potomac River MO County	MO	Sediment	2,115,933	84,627	4.0%
Potomac River WA County	WA	Sediment	559,109	141,208	25.3%
Prettyboy Reservoir	BA, CR	Phosphorus	37	395	1,063.6%
Rock Creek	MO	Phosphorus	419	25	6.1%
		Sediment	1,283,159	46,850	3.7%
Rocky Gorge Reservoir	HO, MO, PG	Phosphorus	100	5	5.2%
Seneca Creek	MO	Sediment	2,679,759	428,869	16.0%
South River	AA	Sediment	776,140	3,045,461	392.4%
Swan Creek	HA	Sediment	221,069	3,189	1.4%
Triadelphia Reservoir (Brighton Dam)	HO, MO	Phosphorus	105	0	0.0%
Upper Monocacy River	CR, FR	Phosphorus	67	178	265.8%
		Sediment	2,260,266	309,959	13.7%
West River	AA	Sediment	161,331	0	0.0%

Note: All reduction targets and achievements are in Edge-of-Stream (EOS) pounds per year. "%Total Reduction Target Achieved" is on a scale of 0% to 100%, where 100% indicates the TMDL reduction target was achieved and a value over 100% indicates SHA implementation is exceeding the reduction target.

1. MDE has not established a percent reduction requirement for SHA related to the Chesapeake Bay TMDL pollutants. In accordance with conditions in Part III of the MS4 Permit, SHA maintaining compliance with all conditions of the MS4 Permit constitutes adequate progress toward compliance with Maryland's receiving water quality standards and any EPA approved stormwater WLAs for the MS4 Permit term.
2. Nutrient and sediment local TMDLs for Anacostia River and the sediment local TMDL for Lower Monocacy River are at the subwatershed scale.
3. Nutrient local TMDLs for Baltimore Harbor Tidal include multiple 8-digit watersheds: Baltimore Harbor, Gwynns Falls, Jones Falls, Patapsco River Lower North Branch, and South Branch Patapsco River.

Two conservation landscaping projects were completed within local TMDL watersheds where SHA has a WLA responsibility during FY24. In addition to the new restoration BMPs, one forest planting project was completed in FY24 to replace previously claimed pollutant load reductions from BMPs that were impacted by new development projects. Even though new restoration projects were completed in FY24, SHA load reduction progress reported for FY24 in **Table V.A.1.e – Part 1** decreased for several TMDLs relative to progress reported in Appendix E to the FY23 MS4 annual report. This decrease in reduction is due to the temporary and permanent removal of BMPs from the existing treatment and restoration portfolios for the applicable TMDL watersheds as described further in the 'Adaptive Management' section of this Appendix. As previously reported in the FY23 MS4 annual report, SHA is reevaluating and revising its MDE approved WLA progress benchmark and attainment dates due to the transition from modeling TMDL loads and load reductions using Chesapeake Bay Program Watershed Model Phase 5.3.2 to Phase 6. Revised benchmark/attainment dates will be submitted to MDE for review and approval.

PCB and Bacteria TMDLs

The MDE stated in its 2022 guidance document, *General Guidance for Local TMDL Maximum Daily Load Stormwater Wasteload Allocation Watershed Implementation Plans*, that significant uncertainty remains surrounding associated load reductions and source contributions for bacteria and polychlorinated biphenyl (PCB) impairments. In February and August 2022, MDE published updated guidance documents for developing bacteria and PCB TMDL implementation plans. The MDE is not requiring progress modeling for bacteria and PCB local TMDLs, so SHA has excluded associated WLAs from all parts of Table V.A.1.e.

In FY24, SHA began updating its implementation plans for PCB and bacteria TMDLs in accordance with requirements established in the 2022 MDE guidance documents. The SHA met with MDE on June 25, 2024 and proposed a PCB partnership strategy with other MS4 jurisdictions with shared responsibility to avoid duplicating efforts. MDE responded that this approach is acceptable. The SHA will continue to develop this strategy in FY25. Updated implementation plans for bacteria and PCB TMDLs in FY25 will be developed in accordance with requirements established in the 2022 MDE guidance document and approved strategies discussed with MDE on June 25, 2024.

Trash TMDLs

As reported in the FY23 MS4 Annual Report, SHA evaluated its data sources used for reporting SHA annual trash reductions from SHA maintenance staff and contractor cleanups as well as the data sources used for reporting trash removed from SHA inlet/pipe cleaning and routine maintenance of SWM facilities. Results of the evaluation suggested that data tracking procedures for routine maintenance of SWM facilities were not designed for the purpose of documenting and reporting those activities for restoration credit/progress toward attainment of trash TMDL WLAs. Programmatic improvements are required to capture sufficient information to credit this activity for TMDL compliance. Annual trash reduction amounts from SHA maintenance staff and contractor cleanups statewide have been relatively constant year-to-year over the course of the MS4 Permit term; however, there continues to be significant variance in the year-to-year implementation levels of these activities within the specific watersheds where SHA has established trash TMDL WLAs.

Table V.A.1.e – Part 2: Progress Toward Attainment of Applicable Trash WLAs Developed Under EPA Approved Local TMDLs

Watershed	TMDL Baseline Year	County	Modeled Target (trash lbs removed/year)			Modeled FY24 Progress (trash lbs removed/year)				SHA Annual Reduction Achieved	% Total Annual Reduction Target Achieved
			SHA Annual Reduction Requirement[1]	Annual Reduction Level to Maintain[2]	SHA Annual Reduction Target[3]	[4]State Forces Inlet Cleaning	SHA/ Contract/ Inmate Pickups	[5]Sponsor-A-Highway	[5]Adopt - A-Highway		
Anacostia	2009	MO	6,044	99,788	105,832	77	40,936	TBD	TBD	41,013	39%
		PG	14,134	271,119	285,253	2	164,859	TBD	TBD	164,861	58%
Patapsco River Mesohaline – Jones Falls	2011	BA	1,419	63,749	65,168	16	79,740	TBD	TBD	79,756	122%
Patapsco River Mesohaline - Gwynns Falls	2011	BA	2,300	126,614	128,914	119	277,682	TBD	TBD	277,759	215%

Note: All reduction targets and achievements are in pounds per year. "%Total Annual Reduction Target Achieved" is on a scale of 0% to 100%, where 100% indicates the TMDL reduction target was achieved and a value over 100% indicates SHA implementation is exceeding the reduction target.

1. Required trash reduction amount established in the applicable EPA-approved trash TMDL document.
2. The trash reduction amount achieved by SHA maintenance staff and contractor clean ups during the TMDL Baseline Year established in the applicable EPA-approved trash TMDL document. Only annual reductions by SHA that exceed this amount should be accounted as progress toward trash TMDL WLAs established for SHA.
3. SHA annual reduction target modeling assumes SHA must first reduce trash annually in an amount equal to trash removed by SHA during the TMDL Baseline Year and then exceed that amount by no less than the annual reduction requirement established for SHA in the applicable EPA-approved trash TMDL document.
4. It is estimated that approximately 5 pounds of trash is removed from an inlet during cleaning based on a literature review of inlet cleaning characterization studies.
5. Data is not collected for this program at the 8-digit watershed scale so SHA cannot yet claim associated trash reductions as progress toward its established trash TMDL WLAs.

To ensure the accuracy of SHA progress reported for trash TMDL WLAs in **Table V.A.1.e – Part 2** below, SHA includes both historic and current trash reductions from SHA maintenance staff and contractor cleanups. To adaptively manage SHA attainment of its trash TMDL WLAs, SHA will continue to work during FY25 to develop a plan to capture sufficient information to reliably report all SHA activities contributing towards trash TMDL compliance in targeted watersheds. In FY25, SHA will continue to assess its data sources used for accounting and reporting trash reduction progress and will work to identify methods that can quantify the subset of trash removed annually by the SHA Sponsor-a-Highway (SAH) and Adopt-a-highway (AAH) programs within trash impaired watersheds.

Adaptive Management

As described in the *Restoration Plans* section of the FY23 MS4 Annual Report, there are many scenarios that can temporarily or permanently decrease the creditability of, or credit yield from, a given BMP claimed for TMDL restoration compliance. These scenarios have been identified in recent fiscal years as recurring and potentially predictable. In accordance with conditions in Parts IV.E.2.b.iv and IV.E.5.e of the MS4 Permit, SHA has worked to develop adaptive management programs that can reduce, over time, the impact of said recurring/predictable scenarios on annual variances observed in the BMP and credit amounts SHA reports as verified MS4 Permit and TMDL restoration progress in each MS4 Permit annual report.

SHA adaptive management programs seek to:

- Improve communication and collaboration with SHA partners and stakeholders. In FY24, SHA met with Chesapeake Bay Trust, National Parks Service, Army Corps of Engineers, Department of Natural Resources, United Stated Fish and Wildlife Service, and other stakeholders to discuss future opportunities, alternative BMPs types and continued conversation to improve perpetual access and credit claiming rights for existing and offsite BMPs.

- Identify new scenarios that can impact the compliance, associated credit, and access to BMPs for the MS4 Permit and TMDL compliance. In FY24, SHA reviewed 119 requests that consisted of project reviews that had potential to impact assets.

- Evaluate standards, procedures, and BMP records to ensure the quality of data from BMP inspection and to identify programmatic improvements. Starting in FY23, SHA implemented a geographic based inspection approach. This approach groups counties together, creating efficiency for the inspection program. In order to group sites geographically, some BMPs inspections were deferred to the following years. Deferred inspections in FY24 resulted in the temporary removal of 164.36 EIA restoration credits from the SHA annual accounting to demonstrate continued compliance with Part IV.E.2.a. conditions of the MS4 Permit.

As a component of its continuous restoration program during FY24, SHA continued to fulfill its partnership commitments to the Maryland Department of Natural Resources, the City of Rockville, the United States Fish and Wildlife Service, and Howard County for shared design and construction projects for new BMP implementation. SHA advanced design for 4 proposed stream restoration BMPs, 7 stormwater BMPs, and 8 forest planting BMPs, and 3 conservation landscape BMPs that will provide pollutant load reductions for the Patuxent River Upper (HUC: 02131104), Potomac River Montgomery County (HUC: 02140202), Little Patuxent River Watershed (HUC: 02131105), Little Catoctin Creek (HUC:02070008), and Lower Gunpowder River (HUC: 02130802) local TMDL watersheds. Information for these 'proposed' and 'construction complete' BMPs is provided in the *BMP*, *AltBMPLine*, and *AltBMPPoly* feature classes of the MS4 Geodatabase – Part 1 submitted with the FY23 MS4 annual report.

Program Funding

In accordance with conditions in Part IV.E.5.c of the MS4 Permit, SHA has provided with the FY24 MS4 annual report a Microsoft Excel workbook containing a summary table and comprehensive list of restoration BMPs completed from 2011 to June 30, 2024, separated by contract number. **Table IV.E.5.d** is provided in accordance with conditions in Part IV.E.5.d of the MS4 Permit and shows the anticipated levels of capital funding allocated for TMDL compliance activities through State fiscal year 2030. This information is publicly accessible in the MDOT *Draft Consolidated Transportation Program (pg. 48 [a-22] and pg. 287 [SHA-SW-3])* for fiscal years 2025 to 2030, published on August 1, 2024, at the following web address:

https://mdot.maryland.gov/tso/Pages/Index.aspx?PageId=27

Table IV.E.5.d: TMDL Compliance Funding Levels

Fiscal Year	Funding Level (Millions)
2025	$18.6
2026	$17.0
2027	$7.0
2028	$29.1
2029	$17.3
2030	$27.3
Total	**$116.5**

Little Catoctin Creek Watershed Monitoring Implementation Document

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

October 2024

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EXECUTIVE SUMMARY

The Maryland State Highway Administration (SHA) Water Programs Division (WPD) completed a stream restoration project on Little Catoctin Creek (LCC) in April 2019. The floodplain restoration project is located north of the town of Rosemont between US-340 at the upstream end and Petersville Road (MD-79) at the downstream end and consisted of stabilization and relocation of approximately 3,000 linear feet of Little Catoctin Creek, just south of MD-180. The goals of the stream and floodplain restoration were to restore impaired vital ecosystems, and return hydrology, geomorphic, and hydraulic stream functions back to pre-development conditions within the 100-year floodplain.

Since 2017, SHA and their partners have been monitoring the project to fulfill the NPDES/MS4 permit requirement for Assessment of Controls, as described in the MDE approved monitoring plan. Monitoring activities included measurements of chemical, physical, and biological conditions spanning from the pre-construction phase through the post-construction phase. This report documents the findings from the fifth, and final, year of monitoring.

This annual report includes results from all monitoring activities performed between July 1, 2023 and June 30, 2024 (FY24) with discussion and comparison to monitoring results from earlier phases of the stream restoration project. Discharge, velocity, continuous water quality measurements, and discrete water quality sample analyses representing phase CHEM 5 are presented herein. There was no physical or biological monitoring performed in FY24, as the final phase of physical monitoring (PHYS 4) was completed in 2020 and the final phase of biological monitoring (BIO 4) was completed in 2022, and these results have previously been presented in the respective MS4 Annual Reports.

BMP performance of the stream restoration project was assessed by comparing EMCs entering the study reach (i.e., influent concentrations) with those exiting the study reach (i.e., effluent concentrations) for Total Nitrogen (TN), Total Phosphorus (TP), and Total Suspended Solids (TSS). Results of the non-parametric Wilcoxon signed-rank test comparing paired samples show statistically significant reductions (at 95% confidence) for TN only during the pre-construction phase. There were no statistically significant reductions observed in any parameters during the construction phase. During the post-construction phase, statistically significant reductions were observed for TN, TP, and TSS. The results of this study suggest that the Little Catoctin Creek stream restoration project has been successful at reducing TN, TP and TSS concentrations in the watershed.

1 Introduction

The Maryland State Highway Administration (SHA) Water Programs Division (WPD) has completed a stream restoration project on Little Catoctin Creek (LCC). The restoration extents originate at SHA bridge structure number 10081 along MD 180 (Jefferson Pike) and continues downstream approximately 3,100 LF of the existing channel. The floodplain restoration project consisted of stabilization and relocation of approximately 3,000 linear feet of Little Catoctin Creek, south of MD-180. The goals of the stream and floodplain restoration were to restore impaired vital ecosystems, and return hydrology, geomorphic, and hydraulic stream functions back to pre-development conditions within the 100-year floodplain. Construction of the Little Catoctin Creek stream restoration project was completed in April 2019.

SHA has completed monitoring the Stream Restoration of Little Catoctin Creek at U.S. 340 project per the NPDES/MS4 Assessment of Controls requirement and as described in the Maryland Department of the Environment (MDE) approved monitoring plan (SHA, 2016). This report documents the findings from the fifth, and final, year of monitoring. Beginning in FY25, SHA will participate in the Pooled Monitoring Advisory Committee administered by the Chesapeake Bay Trust (CBT) for compliance with the Assessment of Controls, BMP Effectiveness and Watershed Assessment Monitoring conditions of the NPDES MS4 discharge permit.

The following sections of this annual report include monitoring activities performed between July 1, 2023 and June 30, 2024 (FY24) with discussion and comparison to monitoring results from earlier phases of the stream restoration project (i.e., CHEM 1 – CHEM 4). It should be noted that there was no physical or biological monitoring performed in FY24, as PHYS 4 was completed in 2020 (FY20) and BIO 4 was completed in 2022 (FY22), and these results have previously been presented in the respective MS4 Annual Reports.

2 Study Area

The Little Catoctin Creek watershed occupies 17.72 square miles (11,340.3 acres) in the southwestern corner of Frederick County in the Blue Ridge physiographic province. It flows 8.5 stream-miles southeast from its headwaters on the eastern side of South Mountain to the mouth east of the town of Brunswick and drains directly into the Potomac River. Land use in the watershed is primarily agricultural. Approximately 20 percent of the watershed draining to the study reach is forested. Impervious surface comprises less than 3 percent of the watershed (SHA 2016).

The study area is located north of the town of Rosemont between US-340 at the upstream end and Petersville Road (MD-79) at the downstream end. Within the study area, Little Catoctin Creek flows through active and old pasture. Prior to restoration, much of the riparian area (especially in reaches adjacent to MD-180) contained few trees – leaving much of the stream open to direct sunlight. Stream banks within the open pasture were steep and heavily eroded. Riffle and run habitats within the creek were predominantly cobble and gravel. Heavy deposits of fine silt and sand were found in pools and depositional areas.

3 Chemical Monitoring

Chemical monitoring of Little Catoctin Creek was performed per the chemical monitoring methodology specified in the NPDES/MS4 Assessment of Controls monitoring plan for the following monitoring efforts:

- Pre-construction phase (CHEM 1): January 3, 2017 to January 31, 2018
- Construction phase (CHEM 2): February 1, 2018 to April 15, 2019
- Post-construction phase Year 1 (CHEM 3): April 16, 2019 to April 30, 2020
- Post-construction phase Year 2 (CHEM 4): May 1, 2020 to June 30, 2020 (performed by USGS). June 1, 2022 to June 30, 2023 (performed by EA)
- Post-construction phase Year 3 (CHEM 5): July 1, 2023 to June 30, 2024

Discharge, velocity, continuous water quality measurements, and discrete water quality sample analyses made during the first portion of CHEM 4 (through June 30, 2020) are available through the U.S. Geological Survey's National Water Information Service (NWIS) online at: https://www.waterqualitydata.us/.

Due to impacts to available resources that began in FY20 and persisted in FY21 as a result of the COVID-19 pandemic, MDOT SHA deferred CHEM 4 and BIO 4 monitoring activities at the LCC stream restoration site until FY22. In February of 2022, EA Engineering, Science and Technology, Inc., PBC (EA) received notice to proceed from SHA for monitoring activities in the Little Catoctin Creek, including re-establishing monitoring stations that had been removed in June 2020 during the COVID-19 pandemic. Due to manufacturer supply chain issues, the ISCO and HOBO monitoring equipment orders were delayed approximately 8 weeks from the order date, which resulted in limited recording of continuous velocity and discharge data at the upstream and downstream chemical monitoring stations during the FY22 reporting period. During the time between when EA received Notice to Proceed from The State Highway Administration and waiting to receive the shipment of the continuous monitoring equipment EA performed a cross section elevation survey and two velocity surveys at the upstream and downstream chemical monitoring stations. In June of 2022 while waiting for the ISCO monitoring equipment to arrive HOBO KIT-D-U20-1 temperature and depth loggers were installed at both chemical monitoring locations, A baseflow sample was collected on June 6, 2022. On June 27, 2022, EA collected six discrete storm event subsamples, it should be noted that the storm tracked over the National Weather Service Emmitsburg MD weather station and did not track over the Hagerstown Airport weather station. It is possible that an event may be labeled as being a "storm" although precipitation did not occur at the weather station – isolated summer thunderstorms may have impacted only the LCC basin but did not impact the weather station, in February of 2023 EA installed a Onset rain gauge onsite to assist with tracking precipitation due to the distance of weather stations from the monitoring locations and possibility that scattered storms may not be represented in the weather station data but may still be present within the area of the monitoring location. Since continuous monitoring equipment was not installed for this storm event the existing stage discharge relationship was relied on to calculate velocity and discharge for this event. Additionally, there was no expected observed response in stream over the course of this storm event. Future storm events will rely on the area velocity meter installed at the upstream chemical monitoring station to calculate discharge. The ISCO 2150 area velocity meter was installed on June 29, 2022 and began collecting continuous velocity data in 5-minute intervals.

In June of 2022, EA began collecting continuous discharge, velocity, depth, and discrete water quality sample data at the chemical monitoring stations. The monitoring efforts through June 30, 2022 were conducted as part of the FY22 post-construction phase Year 2 (CHEM 4) first quarter chemical and flow monitoring activity, to evaluate post-construction conditions. EA collected samples for one storm event and one baseflow event during the FY22 reporting period. **Figure 1** shows Little Catoctin Creek and the locations of the two USGS stream gages used for monitoring.

In July of 2022, EA began collecting storm event samples for the FY 23 reporting period as a continuation of the CHEM 4 post-construction monitoring phase. Eleven storm event samples and two baseflow samples were collected from July 2022 through June 2023. EA collected an additional 11 storm event samples and one baseflow sample from July 2023 through June 30, 2024 as part of an additional CHEM 5 post-construction monitoring phase that was not a component of the MDE-approved monitoring plan but was added at the request of MDE.

Figure 1. Chemical Monitoring Locations (USGS Stream Gages)

3.1 Surface Water Stage/Discharge/Velocity

In September 2016, U.S. Geological Survey established Site 01636845 (Figure 1, Little Catoctin Creek Near Rosemont, MD; upstream). This station was equipped with a radar level sensor and acoustic doppler velocity meter (ADVM) for measuring stage and velocity, respectively. In the pre-construction and construction phases of the study, 82 discrete discharge measurements were made for the purpose of calibrating these instruments, covering a range of 0.49 cubic feet per second (ft^3/s) to 307 ft^3/s. These measurements establish the relation between stage-velocity and discharge. Thirty-six manual calibration measurements were made between July 1, 2018 – June 30, 2019, which includes the period when the gage was decommissioned following the historic flood in 2018 and again at the start of the stream reconstruction work (January 18, 2019 – May 23, 2019). The gage was rebuilt using a radar water-level measuring system mounted aside the Rte. 180 Bridge and began operating in April 2019. Since then, 39 additional discharge measurements were made through July 2020 to recalibrate the stage-discharge relation. Because of the construction of the pond directly downstream of the bridge, the ADVM equipment could not be reinstalled at the upstream station, so water velocity entering at the upstream station (the pond) is not available for the post-construction during this period.

In December 2016, U.S. Geological Survey established the downstream site 01636846 (Little Catoctin Creek at Rosemont, MD). This site was instrumented with an ADVM to measure stream velocity. In September 2017, a bubbler-style gage unit was installed at this site to record stage needed for the computing discharge. Current and historic observations can be found at: *https://waterdata.usgs.gov/nwis/inventory/?site_no=01636846&agency_cd=USGS*

Discharge at the downstream station was deemed necessary because of the possibility that construction would enhance groundwater flow into the stream through the channel bottom. In addition, numerous springs and seeps were observed along the banks of the Little Catoctin Creek that likely contribute to the stream flow. Measurement of volumetric discharge concurrently at both the upstream and downstream stations allow quantification of the changes through the reach, and changes that may be attributed to the restoration effort. Methods used in this work follow USGS procedures in USGS Techniques of Water-Resources Investigations (Book 3, Chapter A8) available at https://pubs.usgs.gov/tm/tm3-a7/tm3a7.pdf and https://pubs.usgs.gov/twri/twri3a8/.

During the study, 284 and 261 discrete discharge measurements were made at the upstream and downstream sites, respectively, ranging from 0.54 ft^3/s to 824 ft^3/s at the upstream site, and 0.49 to 2,100 ft^3/s at the downstream site. The difference in ranges due to the disruption the upstream station caused by the 2018 flood. These discrete measurements help ensure the accuracy of the continuous discharge measurements required for evaluating the rehabilitation.

In June of 2022, with guidance from SHA, EA proposed and established an alternate downstream chemical monitoring station (Figure 3) due to safety and accessibility concerns of collecting storm samples via wading into the stream at the original downstream monitoring station. A HOBO KIT-D-U20-1 logger and stream gage are installed at the new downstream chemical monitoring station (**Figure 4**). This alternate downstream chemical monitoring station is located downstream of the previous station at coordinates Northing 185568.226199999 and Easting 346207.164300002

(Maryland North American Datum 1983 (NAD 83)).

In June 2022, EA began collecting continuous velocity and flow data in 15-minute intervals with an ISCO 2150 area velocity flow module mounted to the Jefferson Pike Route 180 bridge at the upstream chemical monitoring station 01636845 (**Figure 5**). EA also began collecting continuous temperature and depth data in five-minute intervals using HOBO KIT-D-U20-1 loggers installed at the upstream 01636845 (**Figure 5**) and downstream 01636846 (**Figure 4**) chemical monitoring stations beginning in June 2022. Pre- and post-restoration historic observations can be found online at: *https://nwis.waterdata.usgs.gov/md/nwis/uv/?site_no=01636845*

Figure 2. Upstream chemical monitoring station 01636845

Figure 3. Re-located downstream monitoring station 01636846

Figure 4. Relocated downstream station (Site ID 01636846) on Little Catoctin Creek near Rosemont, MD. The photo shows the HOBO logger and stream gage.

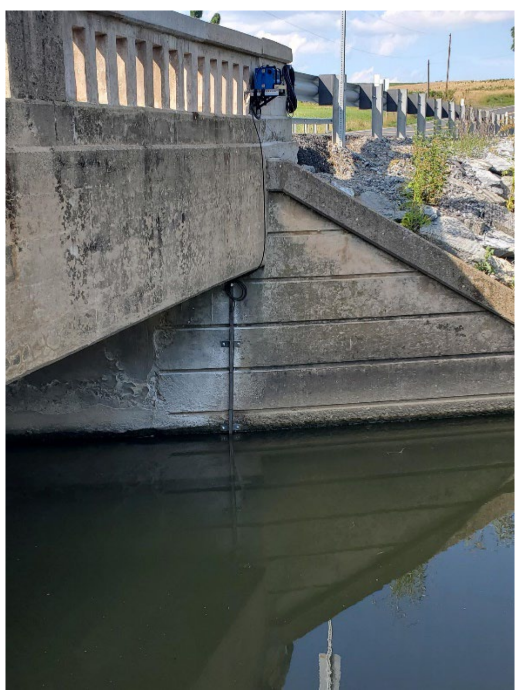

Figure 5. Upstream station (Site ID 01636845) on Little Catoctin Creek near Rosemont, MD, showing the ISCO velocity and area flow module.

As part of continued post-construction monitoring, a stream geomorphic survey was conducted at the upstream monitoring location on 19 May 2022, and at the re-located downstream monitoring location on 16 June 2022. Between May 2022 and March 2023, EA conducted 7 stream velocity surveys at the upstream monitoring location, and 7 stream velocity surveys at the downstream monitoring location. The velocity surveys were used to determine stream flow and stage during a range of different flow conditions in order to verify if the pre-construction USGS rating curves needed to be updated for post-construction monitoring. As shown in **Figure 6** and **Figure 7**, the USGS rating curves do not reflect the post-construction stream hydrodynamics, so a new rating curve was developed for both the upstream and downstream stations. The updated rating curves were fit to the paired stage-discharge data using the following equation:

$$Q = a \times (WSE - e)^b$$

where

Q = discharge in ft^3/s,
WSE = water surface elevation in NAVD88 feet,
e = ineffective flow elevation in NAVD88 feet, and
a and b = rating curve coefficients.

The revised rating curves provide a reasonable fit to available stage-discharge data and were subsequently used to compute EMCs and flow volumes. However, it should be noted that the new rating curves were developed with very limited data; therefore, the rating curves may not be fully representative of higher flows and storm volumes may be underestimated for large storm events.

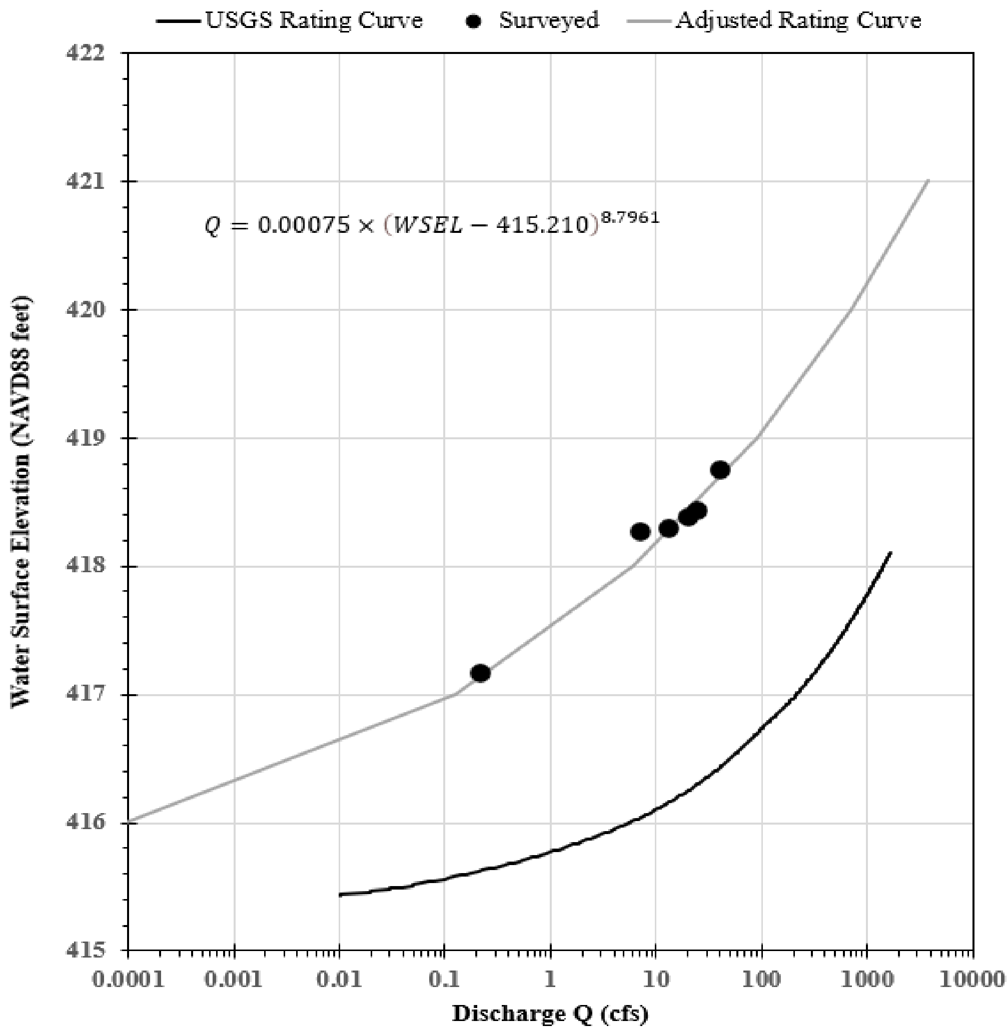

Figure 6. Rating curve for upstream station (Site ID 01636845) with comparison to USGS rating curve.

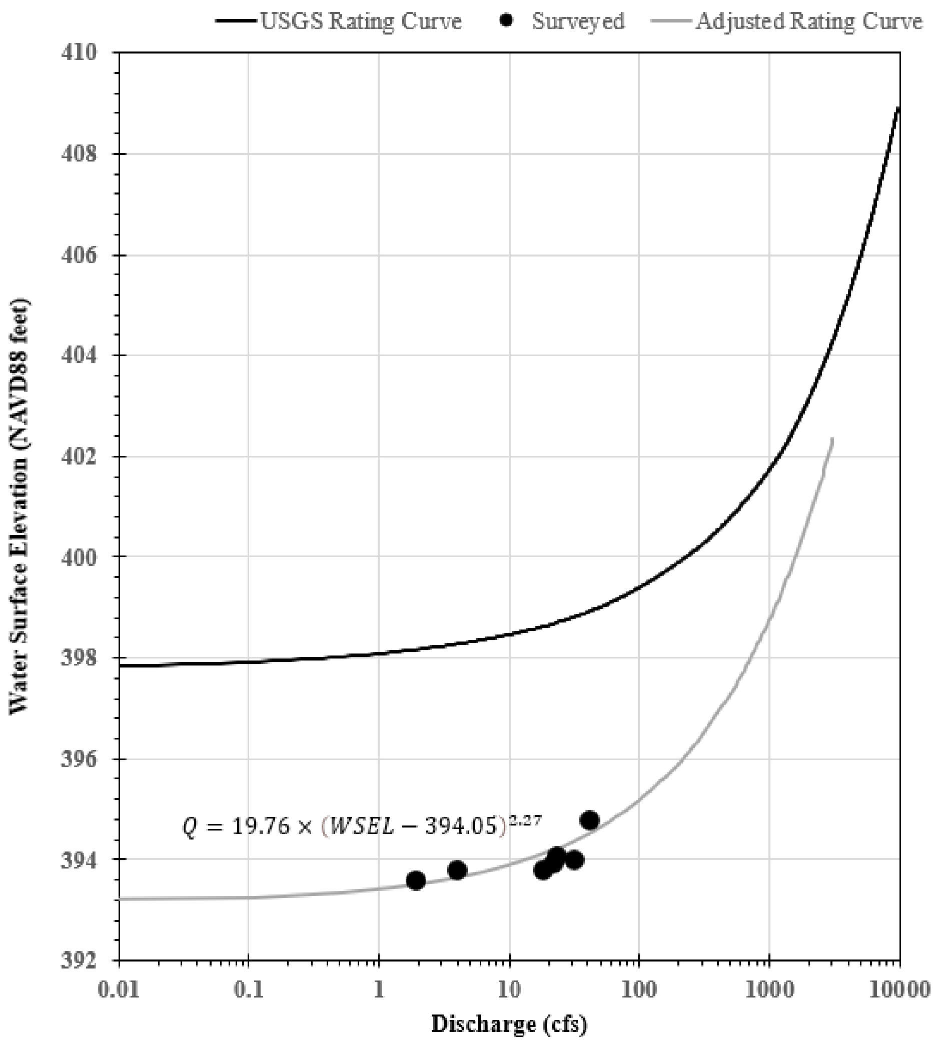

Figure 7. Rating curve for downstream station (Site ID 01636845) with comparison to USGS rating curve.

3.1.1 Summary of Discharge and Velocity Data

The continuous discharge and water velocity data were downloaded, tabulated, and inspected for completeness, where completeness is defined as the percent of time when measurements were recorded compared to the total time of gage operation. Completeness is an important consideration when attempting to compare hydrologic and chemical parameters among time periods. For example, extended periods of missing data will greatly hinder the ability to compare volumes and loadings among pre- and post-construction periods. Data loss is the result of equipment failures, icing, or other unforeseen incidents such as major floods. Another factor is the percentage of data "approved" by the USGS for use. Hydrologic data collected by the USGS undergoes a rigorous review process before becoming "approved", with data classified as "provisional" being subject to change upon USGS review.

A summary of the continuous hydrologic data is presented in **Table 1** for the entire study period (October 1, 2017, through June 30, 2024). The data are divided into four intervals as follows:

1. Pre-construction period from the initiation of sampling (January 3, 2017) until construction started on January 31, 2018
2. Construction period from February 1, 2018 to April 15, 2019
3. Post-construction period from April 16, 2019 to June 30, 2020 when the study was suspended (conducted by USGS)
4. FY22 - FY24 post-construction period from June 29, 2022 to June 30, 2024 (conducted by EA)

As previously discussed, the gaging equipment at the upstream station was removed for 126 days (beginning on January 18, 2019) because of the floodplain restoration work. The gage was reinstalled and began operating again at the end of the construction work. This explains the low percentage of the discharge record in **Table 1** for the construction period. Recording of continuous velocity and discharge data for the post-construction monitoring period resumed on June 29, 2022.

As was the case in the pre- and construction phases, discharge and gage heights during the post-construction phase are higher at the downstream station than in the upstream station – indicating the Catoctin Creek study is a gaining reach. Median discharges for post-construction from June 29,2022 until June 30, 2024 are 4.23 ft^3/s (maximum of 772 ft^3/s) upstream and 5.28 ft^3/s (maximum 406 ft^3/s) downstream. The difference in medians between upstream and downstream (downstream minus upstream = 1.05 ft^3/s) can be interpreted as the yearly groundwater input to the stream over this period. A smaller difference, 0.14 ft^3/s, existed between the medians of the upstream and downstream stations during the pre-construction period.

Comparing discharge measured concurrently at the upstream and downstream stations indicates that post construction discharge typically increases by approximately 15% through the stream reach (pre-construction flow data was reported as an 8% increase). Any "missing" discharge values, such as occurred at the upstream station during the construction period, can be estimated as being roughly 80% of the discharge measured downstream.

Table 2 is a summary of precipitation data for the site during the project study. The rain gage at the site began operation on February 25, 2018, so precipitation data were not available the pre-construction monitoring period. The precipitation record is sporadic through the construction and post-construction period due to problems with the rain collection equipment. To maintain consistency, the precipitation record from the Hagerstown Regional Airport, retrieved from NOAA website (https://www.ncdc.noaa.gov/data-access) was used to calculate precipitation totals and intensities for the sampled storm events. As is evident in this table, total precipitation varied considerably during the pre-, construction, and post-construction periods. During FY20, 32.25 inches of precipitation fell over the 367 days (start and end dates inclusive) in the year. During the construction period, several very large storms occurred, including the 100-year record storm, resulting in over 2 times more precipitation than was measured in the pre- and post-construction periods. Roughly 1.5 inches more precipitation fell in the post-construction interval than in the pre-construction. During FY22 EA retrieved precipitation data from the National Weather Service NOAA online weather data web site (https://www.weather.gov/wrh/climate?wfo=lwx) from the Emmitsburg, MD weather station. All precipitation data was recorded from Emmitsburg NWS weather station unless otherwise noted. Due to rapid changes in the paths of isolated summer thunderstorms that impact the LCC basin Emmitsburg, MD NWS weather station may not have recorded precipitation for every storm event even though precipitation was observed by field teams onsite. In this scenario precipitation data was recorded from the Hagerstown Regional Airport. Precipitation for the FY22 reporting period was recorded for the months of May and June totaling 10.51 inches of rainfall over 61 days. Precipitation for the FY23 reporting period was recorded for the months of July 2022 through June of 2023 totaling 43.43 inches over 365 days. Precipitation for the FY24 reporting period was recorded for the months of July 2023 through June of 2024 totaling 44.52 inches over 365 days.

Table 1. Summary statistics of gage height, discharge, water velocity and precipitation measured during the construction phases at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md.

[ft, feet; ft3/s, cubic feet per second; ft/s, feet per second; in, inches; min, minutes; --, not available]

	Gage height (ft)	Discharge (ft^3/s)	Velocity (ft/s)
UPSTREAM (01636845)			
Pre-construction 1/3/17 – 2/1/18			
Maximum	5.59	454	2.92
Minimum	0.16	0.36	0.0
Median	1.12	1.74	0.10
Construction 2/2/18 – 4/15/19			
Maximum	8.96	9050	7.28
Minimum	0.88	1.08	0.00
Median	1.75	5.78	0.20
Post-construction 4/16/19 to 6/30/20			
Maximum	4.51	842	na
Minimum	1.93	0.32	na
Median	2.58	2.86	na
FY22-FY24 Post-construction 6/29/22 to 6/30/24			
Maximum	4.62	772	2.47
Minimum	1.46	1.47	0.04
Median	1.88	4.23	0.40

Table 1. Summary statistics of gage height, discharge, and water velocity measured during the monitoring phases at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued.

[ft, feet; ft3/s, cubic feet per second; ft/s, feet per second; --, not available]

	Gage height (ft)	Discharge (ft^3/s)	Velocity (ft/s)
DOWNSTREAM (01636846)			
	Pre-construction 1/3/17 – 2/1/18		
Maximum	5.03	562	2.92
Minimum	1.32	0.38	-0.23
Median	1.44	1.88	0.11
	Construction 2/1/18 – 4/15/19		
Maximum	12.1	9,630	7.28
Minimum	1.22	0.33	-0.64
Median	1.65	6.95	0.20
	Post-construction 4/16/19 to 6/30/20		
Maximum	4.82	918	7.34
Minimum	1.32	0.46	0.001
Median	1.40	3.53	0.235
	FY22-FY24 Post-construction 6/29/22 to 6/30/24		
Maximum	4.68	406	na
Minimum	0.32	1.48	na
Median	1.46	5.28	na

Table 2. Summary of monthly precipitation at Hagerstown Regional Airport during the pre-construction, construction, and post-construction phases of the study.

Pre-construction 1/3/18 to 2/1/18		Construction 2/2/18 to 7/15/19		Post-construction 4/16/19 to 6/1/20		[1]FY22-FY23 5/1/22 to 6/30/23		FY24 7/1/23 – 6/30/24	
Month and year	Total ppt. inches	Month and year	Total ppt. inches	Month and year	Total ppt. inches	Month and year	Total ppt. inches	Month and year	Total ppt. inches
Jan-17	2.75	Feb-18	3.88	Apr-19	3.14	May-22	7.22	Jul-23	3.72
Feb-17	1.35	Mar-18	1.96	May-19	5.73	Jun-22	3.34	Aug-23	4.70
Mar-17	2.83	Apr-18	4.12	Jun-19	2.12	July-22	5.27	Sep-23	3.85
Apr-17	2.37	May-18	4.64	Jul-19	4.37	Aug-22	3.06	Oct-23	1.66
May-17	5.32	Jun-18	4.97	Aug-19	2.4	Sep-22	3.66	Nov-23	2.88
Jun-17	2.74	Jul-18	5.96	Sep-19	0.48	Oct-22	3.27	Dec-23	5.41
Jul-17	5.35	Aug-18	6.24	Oct-19	5.25	Nov-22	3.44	Jan-24	5.85
Aug-17	2.9	Sep-18	9.31	Nov-19	0.8	Dec-22	5.27	Feb-24	2.08
Sep-17	1.45	Oct-18	1.63	Dec-19	3.05	Jan-23	1.58	Mar-24	3.67
Oct-17	3.54	Nov-18	2.46	Jan-20	2.75	Feb-23	1.74	Apr-24	4.30
Nov-17	1.62	Dec-18	4.87	Feb-20	1.71	Mar-23	2.99	May-24	4.42
Dec-17	0.81	Jan-19	3.43	Mar-20	2.57	Apr-23	3.27	Jun-24	1.98
Jan-18	2.62	Feb-19	2.97	Apr-20	4.53	May-23	7.22		
		Mar-19	4.21	May-20	1.55	Jun-23	2.66		
		4/16/19 end	0.99						
Total precipitation	35.65		61.64		40.45		53.99		44.52
Total days	395		438		413		426		365

[1] FY22-FY23 data retrieved from NOAA Emmitsburg weather station.

3.2 Water Quality Measurements

In November and December 2016, multiparameter water quality sondes (YSI EXO-2) were installed at site 01636845 and 01636846, respectively (**Figure 9** and **Figure 10).** These sondes measured temperature, specific conductivity, pH, and turbidity at 5-minute intervals, and data are available on the NWIS website listed above. As mentioned previously, due to the restoration activities, the upstream data sonde was removed 1/18/19 and returned to operation on 4/9/19. The sondes were permanently removed on June 30, 2020 when the sampling activities were temporarily suspended.

Figure 8. U.S. Geological Survey downstream station (Site ID 01636846) on Little Catoctin Creek near Rosemont, MD.

Figure 9. U.S. Geological Survey the downstream station (Site ID 01636846) on Little Catoctin Creek near Rosemont, MD showing the temporary gage station and the discharge and water-quality sonde.

3.2.1 Summary of Discrete Water Quality Measurements

Discrete water-quality data was measured using a YSI DSS PRO sonde unit before the rising, peak and receding sub-samples were collected. The average of three measurements for water temperature, specific conductance, pH, dissolved oxygen and turbidity data are presented in **Table 3**.

Table 3. Average discrete water quality data recorded during the FY22-FY24 post-construction monitoring at the upstream (01636845) and downstream (01636846) monitoring stations on Little Catoctin Creek, Md.

[NTU, nephelometric turbidity units; µS/cm, micro-siemens per centimeter; degrees Fahrenheit, mg/L milligrams per liter]

Date and Time	Average Water Temperature (ºF)	Average Specific Conductance (µS/cm)	Average Turbidity (NTU)	Average pH (standard Units)	Average Dissolved Oxygen (mg/L)
UPSTREAM (01636845)					
6/6/22 – 6/30/24					
6/6/2022 10:15	66.2	322.1	3.39	7.25	8.77
6/27/2022 10:25	73.2	324.6	4.91	7.27	7.68
7/18/2022 15:45	76.6	333.3	7.99	7.55	8.31
8/30/22 15:30	78.3	464.2	30.65	7.79	9.77
9/22/22 09:24	68.9	398.5	6.65	7.40	7.30
10/1/23 08:15	57.4	273.0	18.9	7.28	9.16
10/13/22 15:07	59.9	381.3	17.40	7.21	7.39
11/11/22 08:45	56.3	255.8	41.62	7.06	5.98
1/31/23 11:20	42.26	253.3	8.40	7.46	7.35
2/16/23 12:38	48.4	211.6	56.87	7.54	9.52
3/10/23 11:00	44.6	396.7	10.90	7.58	10.20
3/24/23 09:00	52.5	264.0	17.17	7.42	8.85
4/28/23 09:00	55.2	246.3	14.55	7.54	8.48
6/12/23 12:45	68.9	369.5	78.24	7.39	8.02
6/30/23 08:55	68.9	362.5	4.36	7.34	5.56
8/7/23 18:29	73.9	363.7	38.07	7.14	3.41
9/17/23 08:00	60.4	339.1	5.00	7.73	9.23
9/23/23 08:45	62.4	454.2	15.22	7.38	4.31
11/21/23 10:45	44.4	344.2	8.27	7.22	6.95
12/10/23 10:30	41.4	243.5	15.79	7.30	8.30
12/17/23 16:00	44.4	207.8	26.08	7.29	10.21
1/9/24 11:50	40.6	298.1	26.85	7.44	11.54
3/9/24 09:05	46.9	282.7	149.33	7.48	10.64
3/23/24 08:15	46.0	241.0	62.45	7.43	10.94
5/4/24 09:30	57.6	274.3	9.13	7.26	9.18
6/5/24 05:30	69.4	292.0	13.60	7.10	6.72
6/28/24 10:00	70.7	342.0	1.20	7.11	6.72

Table 3. Average discrete water quality data recorded during the FY22-FY24 post-construction monitoring at the upstream (01636845) and downstream (01636846) monitoring stations on Little Catoctin Creek, Md.

[NTU, nephelometric turbidity units; µS/cm, micro-siemens per centimeter, degrees Fahrenheit, mg/L milligrams per liter]

Date and Time	Average Water Temperature (ºF)	Average Specific Conductance (µS/cm)	Average Turbidity (NTU)	Average pH (standard Units)	Average Dissolved Oxygen (mg/L)
Downstream (01636846)					
6/6/22 – 6/30/24					
6/6/2022 11:45	66.2	379.9	7.41	7.67	9.21
6/27/2022 11:15	73.9	338.4	4.34	7.38	8.44
7/18/22 16:20	76.1	342.2	5.16	7.58	8.02
8/30/22 16:05	76.8	445.3	14.87	7.54	7.77
9/22/22 10:29	68.7	325.6	8.10	7.63	8.48
10/1/22 09:04	57.6	330.0	10.48	7.26	9.12
10/13/22 15:59	60.1	412.6	1.97	7.33	8.18
11/11/22 09:24	56.3	273.2	31.07	7.11	6.60
1/31/23 13:30	42.3	245.0	0	7.82	10.19
2/16/23 13:00	48.2	226.2	54.04	7.44	9.19
3/10/23 11:30	44.1	397.9	9.76	7.60	9.90
3/24/23 09:30	52.0	288.0	14.00	7.39	8.77
4/28/23 09:30	55.4	239.0	12.50	7.57	8.70
6/12/23 13:15	68.5	348.2	16.97	7.48	8.38
8/7/23 18:50	73.6	341.3	20.94	7.51	6.19
9/17/23 08:45	60.6	353.2	7.87	7.70	8.57
9/23/23 09:25	61.7	312.7	8.89	7.36	6.51
11/21/23 11:10	42.8	312.1	10.08	7.44	10.17
12/10/23 11:00	41.5	249.3	15.37	7.45	10.73
12/17/23 16:40	44.4	228.8	27.88	7.32	10.93
1/9/24 12:25	40.1	262.4	7.85	7.52	12.23
3/9/24 09:40	46.9	282.0	66.42	7.46	9.92
3/23/24 08:45	46.2	270.7	40.05	7.53	9.90
5/4/24 10:00	57.6	270.6	13.03	7.12	9.24
6/5/24 16:00	69.6	310.2	9.32	7.18	7.11
6/28/24 10:35	71.2	346.0	8.60	7.57	7.28

3.3 Water Quality Sampling

The goals of the water-quality sampling are: (1) to fulfill monitoring requirements outlined in the NPDES/MS4 assessment of controls permit; (2) to facilitate calculation of nutrient and sediment loads or yields; and (3) to document the changes in loads of sediment and nutrients caused by the floodplain restoration. Water-quality sampling was also used to verify cross-channel homogeneity in suspended sediment (SS) and dissolved species, and to provide data for generating relationships between turbidity and suspended-sediment concentration (SSC).

During storm events, it was planned that samples were to be collected during the rise, peak, and falling stages of the hydrograph. These three samples, termed sub-samples, are weighted using the stream discharge at the time of sampling, and then summed to determine the mean concentration for the event, termed EMC:

$$\text{EMC} = \sum_{1}^{n} \left(\frac{\text{Qt}}{\text{QTotal}}\right) * \text{Ct}$$

Where:

EMC is the event mean concentration

Qt is the instantaneous discharge at the time (t) of sub-sample was collected

Q_{Total} is the sum of the instantaneous discharges at times the sub-samples were collected

C_t is the concentration of component measured in sub-sample collected at time t

n is the number of sub-samples collected (2 to 5)

During most storm events, three sub-samples were obtained at each station; however, on some occasions, fewer sub-samples were obtained because of equipment failure or other unavoidable conditions. A few events multiple sub-samples, up to 5, were collected to provide replicate data needed to evaluate variability and precision. When available, replicate samples were included in the calculation of EMC.

Sub-samples were collected either manually by wading or by using automatic samplers. When the stream was wadable (during low-flow and sometimes during the falling stage), composite samples were prepared from 10 vertically depth-integrated grab samples obtained at equally spaced intervals across the stream. These grab samples are composited in a plastic churn, mixed, and sub-sampled for the various analytic protocols. During storm events when wading is not possible (typically the rising and cresting stages), the autosamplers are used to collect discrete samples for nutrient and sediment (either suspended-sediment concentration SSC, or total suspended solids (TSS) and bacteriological constituents. In contrast to wading, automatic samplers collect a sample from a point in the stream. Total petroleum hydrocarbon (TPH) samples were always collected manually (whenever possible), resulting in fewer sub-samples for this constituent.

Over the course of the study, the autosamplers were calibrated by making cross-sectional measurements of turbidity and specific conductance (SC) while the autosampler was collecting point samples for SSC, conductivity, and turbidity. Cross-channel turbidity is used to evaluate the distribution of suspended materials across the channel, while SC is used to evaluate the cross-channel mixing of dissolved constituents by turbulence. SSC can be related to turbidity (and possibly also to discharge), thereby allowing the continuous turbidity record to be used as a surrogate of SSC. The data collected to date show the stream is well mixed with respect to suspended and dissolved materials, and therefore, samples collected by autosamplers are comparable to those collected manually and are considered to accurately represent conditions in the stream. Calibration sampling was re-initiated at this station after sampling equipment was re-installed in April 2019.

Samples collected during times of low-flow are used to represent baseflow chemistry - these may not represent "baseflow" in the strict hydrologic sense; that is, baseflow being the groundwater contribution of the channel flow. Baseflow sampling was conducted only if precipitation had not occurred within 7 days prior to sampling and the stage was low and steady. As discussed below, baseflow discharge ranged from 0.60 to 1.63 ft^3/s, with higher values generally in winter months and during the construction period.

Samples for analysis of constituents that make up TPH were collected manually as grab samples (during both storm and baseflow) and were not composited across the stream. TPH samples are collected using a stainless-steel weighted sampler that holds multiple VOC vials. Because samples for TPH were collected manually, some storm events are represented by only 1 or 2 sub-samples (because of non-wadable conditions). During storms, samples for bacteriological analysis were collected into sterilized plastic bottles by the autosamplers.

Table 4 summarizes the number of storm and baseflow events, and the discrete sub-samples collected for nutrients, bacteriological, and TPH constituents. In total, 86 events were sampled at the upstream site, and 89 at the downstream site. Baseflow was sampled 17 times at the upstream site and 20 times at the downstream station. A total of 235 sub-samples were collected at the upstream station for chemical analysis. At the downstream site, of the 227 sub-samples collected for chemical analysis. A total of 327 samples have been collected at the upstream and 309 at the downstream for SSC; fewer samples were collected for TSS (230 and 223, respectively). Bacteriological samples were collected during all of the storms, totaling 232 and 228 samples at the upstream and downstream stations, respectively. TPH sub-samples totaled 179 and 174 at the upstream and downstream stations, respectively. As mentioned earlier, fewer samples for TPH constituents were collected because of the need to use manual collection methods. As shown in **Table 4**, the number of samples for which EMCs were calculated was 25 in the pre- construction period, 37 during construction and 81 samples during post-construction monitoring. Almost two-times as many samples for SSC were collected in the pre- than in the post-construction phase, which is due to the calibration of the autosamplers.

Upon completion of analyses, results from January 3, 2017 through April 15, 2019 are uploaded into the U.S. Geological Survey's NWIS and are made available at https://water.usgs.gov/owq/data.html#USGS. In addition to the storm and baseflow events, a variety of field and equipment blanks were prepared and analyzed for quality assurance purposes. These data can also be available from the USGS-Md Water Science Center.

In June of FY22, EA resumed collecting baseflow and storm event samples at the upstream and downstream chemical monitoring stations. Three discrete sub-samples were collected during each storm event at each chemical monitoring station. Discrete storm samples were collected manually by wading into the stream during the rising, peak, and falling stages of the hydrograph. In total, 146 discrete sub-samples were analyzed at Eurofins Lancaster Laboratories, Inc. in Leola PA, for Biochemical Oxygen Demand, Total Kjeldahl Nitrogen, Nitrate plus Nitrite, Total Suspended Solids, Total Petroleum Hydrocarbons, Total Lead, Total Copper, Total Zinc, Total Phosphorus and Hardness. Fountain Valley Analytical Lab located in Westminster, MD analyzed 146 discrete sub-samples for *E. Coli*. All results from June 2022 through June 2024 were uploaded to MDOT SHA.

Table 4. Summary of samples collected during monitoring phases at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md.

	Total number of samples for EMC calculation	**No. of sample sets collected during storms (2 or 3 sub-samples)**	**No. of sample sets collected during baseflow (1 sample)**	**No. of sub-samples collected for chemical analyses**	**No. of sub-samples collected for SSC**	**No. of sub-samples collected for TSS**	**No. of sub-samples collected for bacteria**	**No. of sub-samples collected for TPH**
UPSTREAM 01636845								
All Samples (1/3/17 to 6/30/23)	86	73	17	235	327	230	232	179
Samples collected during preconstruction (1/23/17 to 1/31/18)	20	14	7	52	127	49	50	39
Samples collected during construction (2/1/18 to 4/15/19)	21	18	4	56	147	54	54	40
Samples collected during post-construction (4/16/19 to 6/30/20)	19	18	2	54	53	54	55	27
Samples collected during FY22 – FY24 (6/1/22 to 6/30/24)	26	23	4	73	NA	73	73	73
DOWNSTREAM 01636846								
All Samples (1/3/17 to 6/30/23)	89	70	20	227	309	223	228	174
Samples collected during preconstruction (1/23/17 to 1/31/18)	19	11	8	46	115	43	46	37
Samples collected during construction (2/1/18 to 4/15/19)	24	19	5	55	144	54	56	39
Samples collected during post-construction (4/16/19 to 6/30/20)	20	17	3	53	50	53	53	25
Samples collected during FY22 - FY24 (6/1/22 to 6/30/24)	26	23	4	73	NA	73	73	73

3.3.1 Conditions During Sampled Storms and Low-flow

The discharge and precipitation during each event were tabulated and inspected for completeness. To calculate the total discharge for an event, the volume of water passing the gage during each 5-minute interval between measurement was calculated and then summed for the period of interest:

$$Q_{total} = \sum_{start}^{finish} \Delta t * Qt * K$$

Where

Qt is the total volume of water in liters

Δt is the time step between measurements, typically 5 minutes

Qt is the instantaneous discharge measured at time t

K is a constant to change ft^3/s to liters/minute (1699)

It is important to standardize the time over which discharge volumes were calculated for an event. Summation of discharge started at 0:00 on the day when the stream gage height first responded to precipitation and continued to 23:55 on the day the gage height returned to (or near) pre-storm heights. For some events, precipitation occurred again after sampling was completed but before the stage returned to its original pre-storm level. In these cases, the volume summation was ended at the time when the lowest post-storm gage height was reached. Volumes for baseflow samples were calculated for the 24-hours (0:00 to 23:55) of the sampling date, which results in volumes in units of L/day.

As mentioned above, the precipitation record at the upstream site was sporadic, so it was necessary to use precipitation data collected at the Frederick Airport. Data are recorded at the airport station every time 0.01-in of rain was collected. In FY23 and FY24, EA retrieved precipitation data from the NWS Emmitsburg, MD weather station. Rainfall amount and intensity was determined by summing the precipitation volume that occurred over the defined interval of the event. Intensity was then calculated by dividing the total precipitation by the minutes between the times when the first and the final precipitation were recorded. Storm events were tracked by the EA project manager via forecasting by the National Weather Service. During storm event sampling, EA personnel arrived on-site prior the start of precipitation and remained on-site until the end of precipitation. Stream stages were estimated by visual observations of the stream gages on-site, and precipitation was measured via on-site rain gages during storm events. The precipitation record at the site was sporadic, so it was necessary to use precipitation data collected at the Emmitsburg, MD weather station, with exceptions noted above.

A summary of the conditions at LCC during the storm and baseflow events is provided in **Table 5** and includes the date the first sample of the event was collected, the phase of the study (pre-construction, construction, and post-construction), whether upstream or downstream samples were collected, the rainfall amount and intensity, the maximum discharge reached at the upper sampling station, and the total volumes of water passing the two stations. Because the precipitation data listed in this table is from either the Hagerstown Regional Airport or Emmitsburg National Weather Service station, it is possible that an event may be labeled as being a “storm” even though precipitation did not occur at the weather station – isolated summer thunderstorms may have impacted only the LCC basin but not the weather stations.

To evaluate how the sampling effort represented the flow regimes that occur in LCC, discharge recorded at the upstream station at the time each sub-sample was collected was compared with the percentile rankings of discharge in the river for the period October 1, 2016, through June 30, 2023 (**Table 6**). The percentile discharges at the downstream station (not shown) are slightly greater than those at the upstream station, again indicating this is a gaining reach of the stream. The largest number of sub-samples were collected during times when the discharge was at or above the 99th percentile (>75.7 ft^3/s) – the highest flow, followed by samples collected at moderate flows (4.64-8.89 ft^3/s). Thus, the sampling effort produced data that provides a good representation of the water-quality during moderate and high flow regimes. Almost equal numbers of samples were collected in the pre- and post-construction phases when discharge was very low, in the 10th percentile range <1.33 ft^3/s.

3.3.2 Event Mean Concentrations

Event Mean Concentrations (EMCs) for all samples collected in this study (January 3, 2017 through June 30, 2024) are summarized in **Table 7**. Except for TPH, the EMCs values presented in this table are calculated with “non-detect” concentration in a sub-sample replaced with the corresponding MDL concentration. For the TPH, the EMC values were calculated with ‘non-detected’ values replaced with a null concentration (not considered in the EMC calculation). Samples with TPH reported as “nd” indicates that all components of TPH were below their respective MDLs. EMCs for the sampled events are presented in **Table 8.** The following points summarize and help describe how EMCs were calculated.

1. Concentrations of all compounds except TPH in sub-samples that were reported as less-than the method detection level (MDL) were ***replaced with the MDL for the purpose of calculating EMCs***. Few sub-samples had inorganic species reported below their MDL; only BOD, zinc and total suspended solids (TSS) had multiple analyses reported below the MDLs. Because MDL values were used, any load calculated using these EMCs should be considered to be estimated maximum loads.
2. Event mean concentrations were also calculated by replacing non-detected (below MDL) concentrations with 0. These EMCs are not discussed in this report, and any load calculated with these EMCs should be considered a minimum.
3. Total Kjeldahl nitrogen was calculated as the sum of the dissolved organic nitrogen and dissolved ammonia.

4. The Total Kjeldahl Nitrogen result from the June 6, 2022 baseflow sample produced a result of 200 mg/L which is approximately 50 times higher than TKN results from previous studies. EA requested that the analytical laboratory verify this result and rerun the analysis. Unfortunately, no additional sample remained after the initial analysis and this value could not be verified. Due to these circumstances this result is suspected to be attributed to laboratory error due to a miscalculation of the dilution factor. EA and the SHA consultant removed this result from the data set.
5. Because EMCs were calculated as sums of sub-sample concentrations weighted by discharge, some EMCs are below the MDL for the constituent. This occurred in only a few cases and are noted in tables.
6. TPH. Several analytic methods are available for measuring TPH in water samples; different methods may produce different TPH depending on the analytes included in the method. In this work, five organic compounds were summed to obtain a TPH value, these compounds are: toluene (before 9/2018 MDL = 0.05 µg/L; then increased to 0.20 ug/L); benzene (MDL=0.026 µg/L); ethylbenzene (MDL=0.036 µg/L); o-xylene (MDL=0.032 µg/L); and methyl tert-butyl ether (MTBE, MDL = 0.1). Note the detection levels for toluene changed over the study. Because the TPH is calculated by summing various constituent compounds, the MDL for TPH cannot be lower than the highest MDL for any one constituent – in this case, the MDL for TPH is set by the toluene MDL of 0.1 or 0.2 ug/L (depending upon date of sample).

   However, if one component was found at a quantifiable concentration (that is, above its individual MDL) in only 1 of the sub-samples collected for a storm, and was below the toluene MDL, then the TPH_EMC0 concentration was reported as the quantifiable concentration. In other words, the toluene concentration is considered to actually be 0. When the TPH_EMC0 value was calculated and no individual component of the TPH was found quantifiable in any sub-sample, then the concentration is reported as 0 with the MDL for toluene of 0.1 or 0.2 ug/L used for TPH. It should be noted that although an EMC is provided for TPH (set by the MDL of toluene), in most sub- samples none of the TPH constituents were found in a quantifiable concentration; there is no evidence that TPH was present in the stream water during these events.

A few noteworthy observations can be made regarding TPH in the LCC samples from either the upstream or downstream sampling stations.

7. In FY20 samples, compounds that comprise TPH were found at quantifiable concentrations in only 3 sub-samples at the upstream station, that being for benzene (0.01 ug/L sampled on 10/7/19 and 0.02 ug/L sampled on 10/22/19 and 0.02 for the sample collected on 11/24/19). For FY20 samples from the downstream station, quantifiable concentrations were found in three samples: 0.02 ug/L for benzene in the sample from 10/22/19; 0.02 ug/L for benzene in the sample from 10/30/19; and 0.02 ug/L for xylene in the 4/30/20 sample.
8. Prior to FY20, quantifiable concentrations of organic constituents in the sub-samples were found in samples collected on 1/23/17 (both stations), 3/1/17 (upstream), 3/31/17 (both),

4/6/17 (both), 5/5/17 (both), 5/25/17 (both), 6/19/17 (both), 7/6/17 (both), 2/7/18 (upstream), 2/11/18 (both), 3/23/18 (both), 4/6/18 (upstream), 12/15/18 (both) and 3/21/19 (both).

9. Toluene was the only compound detected prior to 3/21/18, after which date only benzene was detected (samples collected on 3/23/18, 12/15/18, and 3/21/19).
10. The highest quantifiable TPH concentration was 0.95 µg/L in one sub-sample collected at the upstream station during the 3/1/17 event, which produced an EMC of 0.49 µg/L for this event.
11. At the downstream station the highest TPH concentration was 0.17 µg/L for a subsample collected during the 1/23/17 event (producing an EMC of 0.16 µg/L).
12. There appears to be no seasonal relation in the presence of the toluene or benzene, as "hits" were observed in samples collected during both winter and summer, and "hits" were observed in both upstream and downstream samples.
13. It should be noted that any quantifiable concentration was very-much lower than would be expected if "free-product" such as gasoline or diesel fuel were in the creek. While the data might be interpreted to indicate that petroleum is occasionally present in the stream, it is more likely these "hits" are random low-level contamination introduced either from sampling equipment or laboratory equipment.
14. In FY22 through FY24 TPH data were analyzed using EPA method 1664A, which has a higher detection limit. Therefore, current TPH data may not be directly comparable to previous TPH data.
15. In FY24 samples collected on 9/17/23, 9/23/23 and 3/9/24 were analyzed past holding time for Biological Oxygen Demand. This is due to the samples being collected on a Saturday or Sunday and the analytical laboratory's inability to receive samples on the weekend as well as BOD setup schedule.

Table 5. Summary of precipitation, maximum discharge reached, and total discharge during sampling events at upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md.

[in, inches; in/hr, inches per hour; ft3/s, cubic feet per second; L, liters]

Date	Phase	Sample collected downstream	Sample collected upstream	Event type	Precipitation amount (in)	Rainfall intensity (in/hr)	**UPSTREAM** maximum discharge reached (ft^3/s)	**UPSTREAM** total volume (L)	**DOWNSTREAM** total volume (L)	**Percent difference upstream to downstream**
1/3/17	Pre	N	Y	Storm	0.06	0.011	84.9	8.403E+07	9.191E+07	9.0
1/23/17	Pre	Y	Y	Storm	0.09	0.009	198	1.420E+08	1.552E+08	8.9
2/23/17	Pre	Y	Y	Base	0	--	1.85	4.430E+06	4.844E+06	8.9
3/1/17	Pre	Y	Y	Storm	0.19	0.095	7.53	1.419E+07	1.552E+07	9.0
3/31/17	Pre	Y	Y	Storm	0.08	0.137	73.7	6.365E+07	6.962E+07	9.0
4/6/17	Pre	Y	Y	Storm	0.00	--	181	1.350E+08	1.475E+08	8.9
5/5/17	Pre	Y	Y	Storm	1.23	0.049	90.9	6.587E+07	7.205E+07	9.0
5/25/17	Pre	Y	Y	Storm	1.15	0.052	123	1.383E+08	1.512E+08	8.9
6/19/17	Pre	Y	Y	Storm	0.00	--	22.0	1.439E+07	1.574E+07	9.0
7/6/17	Pre	Y	Y	Storm	0.30	0.033	303	1.117E+08	1.222E+08	9.0
8/7/17	Pre	Y	Y	Base[1]	0.00	--	2.07	7.257E+06	7.902E+06	8.5
8/24/17	Pre	Y	Y	Base	0	--	0.79	1.682E+06	1.781E+06	5.7
9/26/17	Pre	Y	Y	Base	0	--	0.60	1.371E+06	1.212E+06	-12
10/9/17	Pre	Y	Y	Storm	0.73	0.090	7.7	8.743E+06	1.294E+07	39
10/24/17	Pre	Y	Y	storm	0.45	0.064	4.99	7.490E+06	9.203E+06	21
10/29/17	Pre	Y	Y	Storm	0.46	0.060	122	9.983E+07	9.641E+07	-3.5
11/29/17	Pre	Y	Y	Base	0	--	1.11	2.635E+06	2.981E+06	12
12/20/17	Pre	Y	N	Base	0	--	0.91	2.101E+06	2.871E+06	31
12/24/17	Pre	N	Y	Base	0	--	2.6	4.095E+06	5.124E+06	22
1/12/18	Pre	Y	Y	Storm	1.16	0.048	454	1.748E+08	2.359E+08	30
1/26/18	Pre	Y	Y	Base	0	--	2.5	5.735E+06	6.087E+06	6.0

Note: Light shaded dates represent storm or baseflow events when only 1 station was sampled

1. On 8/7/17 0.02-in of precipitation was recorded at Frederick Airport.

Table 5. Summary of precipitation, maximum discharge reached, and total discharge during sampling events at upstream (**01636845**) and downstream (**01636846**) stations on Little Catoctin Creek, Md.--Continued

Table 5. Summary of precipitation, maximum discharge reached, and total discharge during sampling events at upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued

[in, inches; in/hr, inches per hour; ft^3/s, cubic feet per second; L, liters]

Date	Phase	Sample collected downstream	Sample collected upstream	Event type	Precipitation amount (in)	Rainfall intensity (in/hr)	**UPSTREAM** maximum discharge reached (ft^3/s)	**UPSTREAM** total volume (L)	**DOWNSTREAM** total volume (L)	**Percent difference upstream to downstream**
2/7/18	Const.	Y	Y	Storm	0.03	0.040	88.5	7.209E+07	8.542E+07	17
2/11/18	Const.	Y	Y	Storm	0.52	0.047	48.3	6.619E+07	7.914E+07	18
2/23/18	Const.	Y	Y	Storm	0.17	0.039	26.0	9.864E+07	9.660E+07	-2.1
3/1/18	Const.	Y	N	Storm	0.53	0.169	19.6	2.806E+07	1.312E+08	129
3/23/18	Const.	Y	Y	Base	0	--	12.0	2.502E+07	3.025E+07	19
4/15/18	Const.	Y	Y	Storm	2.69	0.336	235	2.392E+08	2.555E+08	6.6
4/27/18	Const.	Y	Y	Storm	0.34	0.132	7.51	1.157E+07	1.402E+07	19
5/6/18	Const.	N	Y	Base	0.28	0.070	5.99	1.651E+07	2.799E+07	52
5/13/18	Const.	Y	Y	Storm[2]	7.7	0.052	9,050	2.623E+09	1.506E+09	-54
5/22/18	Const.	Y	Y	Storm	0	--	397	1.180E+08	1.208E+08	2.4
6/2/18	Const.	Y	N	Storm	1.4	0.030	1,820	3.351E+08	3.912E+08	15
6/20/18	Const.	Y	N	Storm	0.01	0.002	62.2	2.146E+07	2.790E+07	26
7/16/18	Const.	Y	Y	Base	0	--	1.86	4.068E+06	5.038E+06	21
8/21/18	Const.	Y	N	Storm	0.98	0.363	327	9.671E+07	1.191E+08	21
9/9/18	Const.	N	Y	Storm	1.55	0.049	471	4.279E+08	4.932E+08	14
9/17/18	Const.	Y	Y	Storm	0.36	0.360	410	1.399E+08	1.616E+08	14
10/26/18	Const.	Y	Y	Storm	0.63	0.067	32.8	6.899E+07	8.426E+07	20

Note: Light shaded dates represent storm or baseflow events when only 1 station was sampled

2. Rainfall between 5/13/18 @7:15am on 5/13/18 and 10:45 am on 5/19/18 (147.75 hours) totaled 7.7-inches, however, this precipitation occurred in 7 distinct intervals. The maximum precipitation was 1.9 inches that occurred over 8 minutes at 0:55 am on 5/16/18.

Table 5. Summary of precipitation, maximum discharge reached, and total discharge during sampling events at upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued

[in, inches; in/hr, inches per hour; ft^3/s, cubic feet per second; L, liters]

Date	Phase	Sample collected downstream	Sample collected upstream	Event type	Precipitation amount (in)	Rainfall intensity (in/hr)	**UPSTREAM** maximum discharge reached (ft^3/s)	**UPSTREAM** total volume (L)	**DOWNSTREAM** total volume (L)	**Percent difference upstream to downstream**
11/9/18	Const.	Y	Y	Storm	0	--	94.4	7.334E+07	8.221E+07	11
11/29/18	Const.	Y	Y	Base	0	--	6.3	1.486E+07	1.876E+07	23
12/15/18	Const.	Y	Y	Storm	1.24	0.037	308	3.823E+08	4.644E+08	19
12/20/18	Const.	Y	Y	Storm	0.48	0.051	81.5	7.403E+07	8.169E+07	9.8
2/3/19	Const.	Y	Y	Base	0	--	9.1	3.36E+07	3.951E+07	15
2/6/19	Const.	Y	Y	Storm	0	--	8.8	3.54E+07	4.168E+07	15
2/11/19	Const.	Y	Y	Storm	0.45	0.014	168	1.77E+08	2.088E+08	15
2/21/19	Const.	Y	Y	Storm	0.03	0.007	53.5	7.08E+07	8.335E+07	15
3/21/19	Const.	Y	Y	Storm	0.24	0.012	739	5.32E+08	6.257E+08	15

Table 5. Summary of precipitation, maximum discharge reached, and total discharge during sampling events at upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued

[in, inches; in/hr, inches per hour; ft^3/s, cubic feet per second; L, liters]

Date	Phase	Sample collected downstream	Sample collected upstream	Event type	Precipitation amount (in)	Rainfall intensity (in/hr)	**UPSTREAM** maximum discharge reached (ft^3/s)	**UPSTREAM** total volume (L)	**DOWNSTREAM** total volume (L)	**Percent difference upstream to downstream**
4/19/19	Post	Y	Y	Storm	0.82	0.154	41.5	5.445E+07	5.954E+07	8.9
4/26/19	Post	Y	Y	Storm	0.3	0.039	7.28	4.768E+07	5.218E+07	9.0
5/23/19	Post	Y	Y	Storm	0	--	38.6	3.879E+07	4.685E+07	19
5/30/19	Post	Y	Y	Base	0	--	4.43	9.970E+06	1.122E+07	12
6/13/19	Post	Y	Y	Storm	0.800	0.069	35.7	3.491E+07	4.692E+07	29
6/27/19	Post	Y	Y	Base	0.75	0.900	16.0	9.105E+06	1.166E+07	25
6/29/19	Post	Y	Y	Storm	0.07	0.030	6.11	1.834E+07	2.243E+07	20
7/31/2019	Post	Y	Y	Base	0.00	0.000	1.58	3.649E+06	4.236E+06	15
8/18/2019	Post	Y	Y	Storm	1.07	1.834	30.7	1.814E+07	1.917E+07	5.5
9/30/2019	Post	Y	Y	Storm	0.22	0.115	0.94	3.333E+06	3.927E+06	16
10/7/2019	Post	Y	Y	Storm	0.19	0.019	3.23	7.516E+06	9.642E+06	25
10/22/2019	Post	Y	Y	Storm	0.34	0.047	5.13	8.385E+06	1.190E+07	35
10/30/2019	Post	Y	Y	Storm	0.27	0.030	206	1.227E+08	1.996E+08	48
11/24/2019	Post	Y	Y	Storm	0.50	0.058	5.69	1.638E+07	1.975E+07	19
1/25/2020	Post	Y	Y	Storm	1.08	0.139	369	1.463E+08	1.782E+08	20
2/6/2020	Post	Y	Y	Storm	0.55	0.079	289	2.231E+08	2.928E+08	27
3/13/2020	Post	Y	Y	Storm	0.21	0.079	704	4.130E+07	4.686E+07	13
4/13/2020	Post	Y	Y	Storm	0.68	0.073	31.9	3.769E+07	4.493E+07	18
4/24/2020	Post	Y	Y	Storm	0.29	0.040	21.7	6.585E+07	7.921E+07	18
4/30/2020	Post	Y	Y	Storm	0.21	0.011	302	2.493E+08	3.433E+08	32
6/6/2022	Post	Y	Y	Base	0	--	5.20	1.273E+07	1.885E+07	38.8
6/27/2022	Post	Y	Y	Storm	0.06	0.015	0.629	1.018E+06	1.079E+06	5.8
7/18/22	Post	Y	Y	Storm	0.18	0.045	11.5	9.844E+06	8.815E+06	44.8
8/30/22	Post	Y	Y	Storm	0.65*	0.163	1.83	4.217E+06	6.422E+06	32.8
9/22/22	Post	Y	Y	Storm	0.09*	0.045	1.91	4.526E+06	7.031E+06	32.2
10/1/22	Post	Y	Y	Storm	0.6	0.025	9.47	1.703E+08	7.751E+07	109
10/13/22	Post	Y	Y	Storm	0.25	0.017	2.5	1.180E+07	2.282E+07	25.9

Table 5. Summary of precipitation, maximum discharge reached, and total discharge during sampling events at upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued

[in, inches; in/hr, inches per hour; ft3/s, cubic feet per second; L, liters]

Date	Phase	Sample collected downstream	Sample collected upstream	Event type	Precipi tation amount (in)	Rainfall intensity (in/hr)	**UPSTREAM** maximum discharge reached (ft^3/s)	**UPSTREAM** total volume (L)	**DOWNSTREAM** total volume (L)	**Percent difference upstream to downstream**
11/11/22	Post	Y	Y	Storm	1.69	0.070	54.79	8.582E+07	5.325E+07	80.6
1/31/23	Post	Y	Y	Base	0	--	0.14	1.634E+07	1.678E+07	10
2/16/23	Post	Y	Y	Storm	0.64	0.27	39.42	5.929E+07	6.259E+07	47.4
3/10/23	Post	Y	Y	Storm	0.05*	0.023	6.19	1.532E+07	1.628E+07	47.0
3/24/23	Post	Y	Y	Storm	0.29	0.012	7.76	5.327E+07	5.117E+07	52.1
4/28/23	Post	Y	Y	Storm	2.06	0.089	9.85	4.829E+07	4.774E+07	50.6
6/12/23	Post	Y	Y	Storm	0.29*	0.073	4.47	1.044E+07	1.217E+07	42.9
6/30/23	Post	Y	Y	Base	0	--	0.16	3.757E+06	4.294E+06	43.8
8/7/23	Post	Y	Y	Storm	1.94	0.08	46.9	5.069E+07	2.243E+07	77.3
9/17/23	Post	Y	Y	Storm	0.89*	0.178	3.75	6.730E+06	7.349E+06	8.8
9/23/23	Post	Y	Y	Storm	1.3	0.054	13.79	4.979E+07	3.044E+07	42.3
11/21/23	Post	Y	Y	Storm	2.62	0.109	106.9	9.780E+07	6.502E+07	40.3
12/10/23	Post	Y	Y	Storm	1.4	0.116	26.8	7.077E+07	5.082E+07	32.8
12/17/23	Post	Y	Y	Storm	1.41*	0.059	168.1	2.264E+08	1.132E+08	66.6
1/9/24	Post	Y	Y	Storm	2.33	0.166	535.1	4.947E+08	2.777E+08	56.2
3/9/24	Post	Y	Y	Storm	1.22*	0.174	199.1	2.287E+08	1.505E+08	41.3
3/23/24	Post	Y	Y	Storm	0.72	0.102	113.5	1.108E+08	6.471E+07	52.5
5/4/24	Post	Y	Y	Storm	0.83	0.083	7.59	4.723E+07	5.536E+07	15.8
6/5/24	Post	Y	Y	Storm	0.82	0.082	34.4	3.980E+07	5.758E+07	36.5
6/28/24	Post	Y	Y	Base	0	--	2.42	5.359E+06	1.402E+07	89.4

Note: Light shaded dates represent storm or baseflow events when only 1 station was sampled

Dark shaded volumes at upstream station were estimated from discharge measured at downstream station

* Rainfall data recorded from Hagerstown Regional Airport

[ft^3/s; cubic feet per second]

Table 6. Number of sub-samples collected at the upper station (1636845) under different flow-regimes and monitoring phases on Little Catoctin Creek, Md from 2016-2023.

[ft3/s; cubic feet per second]

Percentile range	Upstream station discharge 10/1/16 to 6/30/24 (ft^3/s)	Discharge range (ft^3/s)	Pre-Construction Number of subsamples [1] collected at upstream station during indicated flow range during pre-construction phase	Construction Number of subsamples [1] collected at upstream station during indicated flow range during construction phase	Post-Construction Number of subsamples [1] collected at upstream station during indicated flow range during post-construction phase
99	75.7	>75.7	51	56	56
95	8.89	8.89--75.7	8	12	14
75	4.64	4.64--8.89	20	30	19
50	2.44	2.44--4.64	3	11	16
25	1.33	1.33--2.44	9	2	14
10	0.81	0.81--1.33	7	1	5
		0--0.81	1	0	5

[1.] Storm events when 2-3 subsamples were collected, or baseflow events when 1 sub-sample was collected.

Table 7. Summary of event mean concentrations calculated for samples collected from upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md.

[EMC, event mean concentration; kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MPN, most probable number; MDL, method detection level]

	Average[1] temperature C	Average pH (stand. units)	BOD-5 (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Nitrite + Nitrate (mg/L)	Total phosphorous (mg/L)	Suspended sediment (mg/L)	TSS (mg/L)	Total copper (µg/L)
UPSTREAM									
Count	73	71	78	86	86	86	70	85	84
Maximum	81	7.9	39.8	3.63	5.10	3.435	1,828	1,460	52.2
Minimum	33.8	7.1	0.01	0.06	0.37	0.048	3	4	0.7
Median	53.5	7.4	7.9	0.93	2.78	0.434	53	48	7.4
# of EMCs below MDL	0	0	2	2	0	0	0	13	0
DOWNSTREAM									
Count	75	75	80	88	88	88	73	87	87
Maximum	77.6	8.8	41.3	4.01	4.91	3.459	1376	1197	48.3
Minimum	34.7	6.7	0.8	0.01	0.03	0.033	1	1	0.30
Median	56.4	7.5	5.5	0.76	2.60	0.314	46	40	7.6
# of EMCs below MDL	0	0	1	3	0	0	0	16	0

	Total lead (µg/L)	Total zinc (µg/L)	Hardness (mg/L)	*Enterococcus* (MPN)	*E. coli* (MPN)	[2,3]TPH (µg/L)
UPSTREAM						
Count	84	82	84	71	84	42
Maximum	32.3	124	163.7	1,000,000	16,500,000	1700
Minimum	0.07	2	37	51	1,100	0.01
Median	1.10	11	86	1,920	207,000	0.09
# of EMCs below MDL	0	7	0	0	0	52
DOWNSTREAM						
Count	86	85	87	75	88	39
Maximum	288	107	172.1	1,710,000	5,180,000	1633
Minimum	0.05	1	29	21	819	0.01
Median	1.07	8	90	23,700	79,900	0.05
# of EMCs below MDL	0	13	0	0	0	43

1. Summary statistics for all constituents except TPH were calculated after replacing non-detected concentrations with respective MDLs.
2. EMC's for TPH were calculated with non-quantifiable measurements (below MDL) replaced with null values.
3. FY22- FY24 results for TPH analyzed by EPA method 1664A.

Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; -- not measured; nd, not detected above MDL]

UPSTREAM (01636845)							
Event date	Stream condition	Average temperature (ºF)	Average pH (stnd. units)	BOD-5 (mg/L)	Total Kjeldahl nitrogen (mg/L)	Nitrite + Nitrate (mg/L)	Total phosphorous (mg/L)
MDL	--	--	--	2	0.5	0.04	0.05
Pre-Construction Samples							
1/3/17	Storm	43	7.6	--	1.8	1.88	1.43
1/23/17	Storm	38	7.4	18	1.3	1.18	3.08
2/23/17	Baseflow	54	7.5	2.0	0.49	4.38	0.048
3/1/17	Storm	55	7.4	13	0.78	2.91	0.590
3/31/17	Storm	48	7.5	12	2.6	1.81	2.18
4/6/17	Storm	54	7.4	18	1.7	0.92	2.40
5/5/17	Storm	62	7.3	15	2.5	2.02	1.38
5/25/17	Storm	70	7.2	11	1.9	3.14	1.83
6/19/17	Storm	75	7.3	40	1.8	2.09	1.24
7/6/17	Storm	75	7.1	8.0	2.0	3.43	1.63
8/7/17	Baseflow	69	7.1	26	3.0	3.36	0.558
8/24/17	Baseflow	70	7.5	1.2	0.38	3.30	0.098
9/26/17	Baseflow	73	7.6	--	0.26	2.36	0.102
10/9/17	Storm	71	7.2	30	1.2	2.13	0.990
10/24/17	Storm	63	7.2	--	3.6	2.57	1.28
10/29/17	Storm	51	7.4	29	1.7	2.89	3.44
11/29/17	Baseflow	46	7.6	1.7	0.22	4.41	0.050
12/24/17	Baseflow	43	7.4	--	1.0	3.55	0.212
1/12/18	Storm	42	7.3	0.4	1.78	3.10	2.43
1/26/18	Baseflow	37	7.3	2.5	0.73	5.10	0.067

Notes: The EMCs presented here for all species except TPH were calculated by replacing ‘non-detects” with respective MDL.

EMC for TPH were calculated by replacing non-detected values with null (0) concentration. Values reported as nd (not detected) indicates that all components of TPH were below their respective MDL

Shaded values had one or more sub-samples with a concentration reported below the MDL.

Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured; nd, not detected above MDL]

			UPSTREAM (01636845)				
Event date	Stream condition	Average temperature (ºF)	Average pH (stnd. units)	BOD-5 (mg/L)	Total Kjeldahl nitrogen (mg/L)	Nitrite + Nitrate (mg/L)	Total phosphorous (mg/L)
MDL	--	--	--	2	0.5	0.04	0.05
			Construction Samples				
2/7/18	Storm	33	7.3	--	1.0	2.37	0.594
2/11/18	Storm	38	7.4	--	1.4	3.06	0.759
2/23/18	Storm	47	7.4	--	0.95	3.07	0.339
3/23/18	Baseflow	41	7.6	6.4	0.40	4.35	0.095
4/15/18	Storm	48	7.1	4.6	1.5	1.65	1.42
4/27/18	Storm	55	7.4	8.6	0.82	2.84	0.170
5/6/18	Baseflow	60	7.5	--	2.1	2.69	0.434
5/14/18	Storm	65	7.3	3.1	1.47	2.25	2.59
5/22/18	Storm	71	7.3	11	1.5	1.45	1.25
7/16/18	Baseflow	81	7.8	2.3	0.11	3.75	0.085
9/9/18	Storm	65	7.0	6.5	0.74	0.66	1.21
9/17/18	Storm	71	7.4	6.7	0.86	2.62	0.497
10/26/18	Storm	50	7.5	7.9	0.93	2.84	0.521
11/9/18	Storm	48	7.2	--	0.68	2.04	0.733
11/29/18	Baseflow	40	7.4	2.7	0.51	4.96	0.051
12/15/18	Storm	43	7.5	23	1.8	1.60	2.18
12/20/18	Storm	45	7.4	9.6	0.86	2.56	0.345
2/3/19	Baseflow	40	7.3	22	0.72	4.62	0.096
2/6/19	Storm	45	7.4	3.7	0.47	3.90	0.070
2/11/19	Storm	35	7.4	7.0	0.63	1.71	0.881
2/21/19	Storm	43	7.4	6.9	0.78	2.82	0.390
3/21/19	Storm	44	7.3	15	1.4	1.96	2.86

Notes: The EMCs presented here for all species except TPH were calculated by replacing 'non-detects" with respective MDL.

EMC for TPH were calculated by replacing non-detected values with null (0) concentration. Values reported as nd (not detected) indicates that all components of TPH were below their respective MDL

Shaded values had one or more sub-samples with a concentration reported below the MDL.

Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured; nd, not detected above MDL]

UPSTREAM (01636845)							
Event date	Stream condition	Average temperature (ºF)	Average pH (stnd. units)	BOD-5 (mg/L)	Total Kjeldahl nitrogen (mg/L)	Nitrite + Nitrate (mg/L)	Total phosphorous (mg/L)
MDL	--	--	--	2	0.5	0.04	0.05
Post-Construction Samples							
4/19/19	Storm	62	7.5	2.4	0.56	1.50	0.156
4/26/19	Storm	64	7.5	12	0.93	3.08	0.182
5/23/19	Storm	70	7.6	13	0.72	3.20	0.522
5/30/19	Baseflow	75	7.6	1.6	0.56	3.62	0.085
6/13/19	Storm	66	7.7	5.4	0.73	2.95	0.178
6/27/19	Baseflow	74	7.7	2.7	0.43	3.41	0.109
6/29/19	Storm	78	7.5	8.0	0.06	2.82	0.240
7/31/19	Baseflow	75	7.8	2.9	0.46	3.53	0.104
8/18/19	Storm	75	7.3	19	1.28	2.49	1.595
9/30/19	Storm	69	7.6	1.5	0.42	2.59	0.104
10/7/19	Storm	63	7.5	8.5	0.79	2.78	0.396
10/22/19	Storm	58	7.5	5.6	0.62	2.34	0.263
10/30/19	Storm	60	7.4	13	1.74	2.00	0.463
11/24/19	Storm	43	7.5	12	1.30	3.25	0.412
1/25/20	Storm	40	7.6	7.2	0.88	1.10	2.111
2/6/20	Storm	43	7.5	6.0	2.38	0.98	0.389
3/13/20	Storm	53	7.5	3.8	0.69	3.61	0.085
4/13/20	Storm	56	7.5	6.3	1.00	1.72	0.416
4/24/20	Storm	52	7.4	13	0.98	2.08	0.280
4/30/20	Storm	57	7.2	15	1.05	0.37	1.330
6/6/22	Baseflow	66.2	7.3	2.0	*	2.7	0.093
6/27/22	Storm	73.2	7.7	2.0	1.18	2.02	0.196
7/18/22	Storm	76.6	7.5	39.3	5.14	2.03	1.36
8/30/22	Storm	78.3	7.8	2.0	0.725	0.906	0.143
9/22/22	Storm	68.9	7.4	2.3	0.666	1.03	0.140
10/1/22	Storm	57.4	7.2	10.4	2.72	1.90	0.769
10/13/22	Storm	59.9	7.1	3.2	1.21	2.23	0.153
11/11/22	Storm	56.3	7.5	22.8	2.00	2.20	0.871
1/31/23	Baseflow	42.26	7.46	2.0	0.5	4.4	0.05
2/16/23	Storm	48.4	7.6	8.1	1.80	2.07	0.253
3/10/23	Storm	44.6	7.4	13.3	1.22	4.30	0.176
3/24/23	Storm	52.5	7.5	14.9	2.59	3.47	0.399
4/28/23	Storm	55.2	7.4	7.4	1.72	1.69	0.234
6/12/23	Storm	68.9	7.3	3.5	0.892	0.27	0.155
6/30/23	Baseflow	68.9	7.5	1.5	1.2	0.22	0.061

Notes: The EMCs presented here for all species except TPH were calculated by replacing 'non-detects" with respective MDL.

EMC for TPH were calculated by replacing non-detected values with null (0) concentration. Values reported as nd (not detected) indicates that all components of TPH were below their respective MDL

Shaded values had one or more sub-samples with a concentration reported below the MDL.

*TKN result was suspected to be laboratory dilution error by EA and SHA.

Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured; nd, not detected above MDL]

UPSTREAM (01636845)							
Event date	Stream condition	Average temperature (ºF)	Average pH (stnd. units)	BOD-5 (mg/L)	Total Kjeldahl nitrogen (mg/L)	Nitrite + Nitrate (mg/L)	Total phosphorous (mg/L)
MDL	--	--	--	2	0.5	0.04	0.05
Post-Construction Samples							
8/7/23	Storm	73.9	7.1	7.9	5.37	1.10	0.977
9/17/23	Storm	60.4	7.7	8.6	2.56	0.79	0.339
9/23/23	Storm	62.4	7.4	6.3	2.98	0.49	0.642
11/21/23	Storm	44.4	7.2	19.3	2.87	1.74	0.642
12/10/23	Storm	41.4	7.3	9.9	7.00	2.00	0.320
12/17/23	Storm	44.4	7.3	6.1	3.31	1.70	0.445
1/9/24	Storm	40.6	7.4	7.6	1.48	2.16	0.259
3/9/24	Storm	46.9	7.5	10.3	3.84	0.87	0.548
3/23/24	Storm	46.0	7.4	16.0	2.44	2.09	0.568
5/4/24	Storm	57.6	7.3	2.5	1.17	2.02	0.128
6/5/24	Storm	69.4	7.1	5.49	0.94	1.86	0.165
6/28/24	Baseflow	70.7	7.1	2.0	0.62	0.78	0.11

Notes: The EMCs presented here for all species except TPH were calculated by replacing 'non-detects" with respective MDL.

EMC for TPH were calculated by replacing non-detected values with null (0) concentration. Values reported as nd (not detected) indicates that all components of TPH were below their respective MDL

Shaded values had one or more sub-samples with a concentration reported below the MDL.

Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number --, not measured; nd, not detected above MDL]

UPSTREAM (01636845)						
Event date	Stream condition	Suspended sediment (mg/L)	Total suspended solids (mg/L)	Total copper (µg/L)	Total lead (µg/L)	Total zinc (µg/L)
MDL	--	0.5	1	0.36	0.071	4
Pre-Construction Samples						
1/3/17	Storm	264	217	15	5.1	30
1/23/17	Storm	1,250	1,250	35	25	109
2/23/17	Baseflow	4	15	0.9	0.07	2
3/1/17	Storm	102	77	4.8	2.4	17
3/31/17	Storm	583	497	20	11	54
4/6/17	Storm	833	618	26	17	78
5/5/17	Storm	202	162	12	3.7	21
5/25/17	Storm	402	381	29	8.3	46
6/19/17	Storm	147	141	9.6	4.1	32
7/6/17	Storm	396	354	19	7.6	37
8/7/17	Baseflow	15	16	3.1	0.31	7.0
8/24/17	Baseflow	5	15	1.3	0.09	2.0
9/26/17	Baseflow	6	15	1.5	0.19	2.0
10/9/17	Storm	57	43	5.8	0.78	11
10/24/17	Storm	29	31	6.2	0.57	12
10/29/17	Storm	723	525	26	13	85
11/29/17	Baseflow	1	15	1.2	0.07	2.0
12/24/17	Baseflow	12	15	3.8	0.29	4.0
1/12/18	Storm	861	660	26.4	13.0	77
1/26/18	Baseflow	4	15	0.8	0.12	2.0

Notes: The EMCs presented here for all species except TPH were calculated by replacing ‘non-detects” with respective MDL.

EMC for TPH were calculated by replacing non-detected values with null (0) concentration. Values reported as nd (not detected) indicates that all components of TPH were below their respective MDL

Shaded values had one or more sub-samples with a concentration reported below the MDL.

Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured; nd, not detected above MDL]

			UPSTREAM (01636845)			
Event date	Stream condition	Suspended sediment (mg/L)	Total suspended solids (mg/L)	Total copper (µg/L)	Total lead (µg/L)	Total zinc (µg/L)
MDL	--	1	1	0.36	0.071	4
			Construction Samples			
2/7/18	Storm	132	100	7.4	2.4	12
2/11/18	Storm	141	128	8.2	3.4	17
2/23/18	Storm	38	25	--	--	--
3/23/18	Baseflow	3	15	1.3	0.08	2.0
4/15/18	Storm	440	328	8.5	2.3	13
4/27/18	Storm	16	16	2.1	0.37	5.4
5/6/18	Baseflow	21	15	4.1	0.32	10
5/22/18	Storm	351	356	11	8.2	31
7/16/18	Baseflow	7	15	1.1	0.12	2.0
9/9/18	Storm	59	318	13	6.7	29
9/17/18	Storm	80	83	6.7	1.8	10
10/26/18	Storm	50	56	5.2	1.1	8.1
11/9/18	Storm	146	116	6.4	3.0	17
11/29/18	Baseflow	4	15	0.7	0.10	2.0
12/15/18	Storm	942	616	34	18	82
12/20/18	Storm	62	50	10	1.4	11
2/3/19	Baseflow	7	--	--	--	--
2/6/19	Storm	6	15	2.4	0.18	2.7
2/11/19	Storm	539	467	14	11	42
2/21/19	Storm	159	138	5.3	3.0	19
3/21/19	Storm	1,440	1,300	41	29	120

Notes: The EMCs presented here for all species except TPH were calculated by replacing 'non-detects" with respective MDL.

EMC for TPH were calculated by replacing non-detected values with null (0) concentration. Values reported as nd (not detected) indicates that all components of TPH were below their respective MDL

Shaded values had one or more sub-samples with a concentration reported below the MDL.

Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured; nd, not detected above MDL]

UPSTREAM (01636845)						
Event date	Stream condition	Suspended sediment (mg/L)	Total suspended solids (mg/L)	Total copper (µg/L)	Total lead (µg/L)	Total zinc (µg/L)
MDL	--	1	1	0.36	0.071	4
Post-Construction Samples						
4/19/19	Storm	7	32	7.6	1.10	7
4/26/19	Storm	19	16	1.7	0.48	5
5/23/19	Storm	113	133	10.8	3.33	20
5/30/19	Baseflow	11	15	1.3	0.27	3
6/13/19	Storm	20	21	2.3	0.51	4
6/27/19	Baseflow	10	15	1.3	0.24	2
6/29/19	Storm	8	46	7.4	1.09	9
7/31/19	Baseflow	6	15	1.4	0.15	2
8/18/19	Storm	446	415	22.7	9.68	57
9/30/19	Storm	10	16	3.9	0.27	3
10/7/19	Storm	28	31	12.7	0.78	9
10/22/19	Storm	29	30	5.4	0.76	6
10/30/19	Storm	15	15	16.3	0.46	8
11/24/19	Storm	25	19	6.6	0.60	8
1/25/20	Storm	1,850	1,480	52.8	32.6	126
2/6/20	Storm	55	53	17.0	1.52	14
3/13/20	Storm	13	15	12.2	0.31	5
4/13/20	Storm	66	65	15.2	1.63	12
4/24/20	Storm	29	23	11.2	0.80	9
4/30/20	Storm	962	877	25.9	18.5	76
6/6/22	Baseflow	--	3	0.7	0.1	4
6/27/22	Storm	--	5.09	1.29	0.54	4.8
7/18/22	Storm	--	129	10.3	3.19	28.5
8/30/22	Storm	--	6.86	0.87	0.187	4
9/22/22	Storm	--	5.39	0.87	0.139	4
10/1/22	Storm	--	145	6.30	1.26	10.6
10/13/22	Storm	--	5.34	1.06	0.140	4
11/11/22	Storm	--	72	9.28	0.707	6.52
1/31/23	Baseflow	--	3.3	0.59	0.071	4
2/16/23	Storm	--	64	6.60	2.06	11.8
3/10/23	Storm	--	4.14	0.88	0.104	4
3/24/23	Storm	--	21	4.03	1.23	13.1
4/28/23	Storm	--	10	2.61	0.376	5.16
6/12/23	Storm	--	10	0.89	0.148	4
6/30/23	Baseflow	--	3.4	0.56	0.15	4

Notes: The EMCs presented here for all species except TPH were calculated by replacing 'non-detects" with respective MDL.

EMC for TPH were calculated by replacing non-detected values with null (0) concentration. Values reported as nd (not detected) indicates that all components of TPH were below their respective MDL

Shaded values had one or more sub-samples with a concentration reported below the MDL.

Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured; nd, not detected above MDL]

UPSTREAM (01636845)						
Event date	Stream condition	Suspended sediment (mg/L)	Total suspended solids (mg/L)	Total copper (µg/L)	Total lead (µg/L)	Total zinc (µg/L)
MDL	--	1	1	0.36	0.071	4
Post-Construction Samples						
8/7/23	Storm	--	49.1	5.98	1.89	14.0
9/17/23	Storm	--	58.9	2.24	1.19	8.76
9/23/23	Storm	--	25.8	5.17	0.765	12.30
11/21/23	Storm	--	21.4	3.06	0.556	5.6
12/10/23	Storm	--	12.6	4.29	0.536	5.66
12/17/23	Storm	--	25.2	5.70	1.28	8.84
1/9/24	Storm	--	14.4	2.97	0.746	6.4
3/9/24	Storm	--	206.7	6.88	2.91	18.28
3/23/24	Storm	--	122.1	7.72	1.76	14.58
5/4/24	Storm	--	14.8	2.18	0.320	4.05
6/5/24	Storm	--	16.5	2.09	.432	4.4
6/28/24	Baseflow		4.1	0.99	0.25	4

Notes: The EMCs presented here for all species except TPH were calculated by replacing 'non-detects" with respective MDL.

EMC for TPH were calculated by replacing non-detected values with null (0) concentration. Values reported as nd (not detected) indicates that all components of TPH were below their respective MDL

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Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured; nd, not detected above MDL]

UPSTREAM (01636845)					
Event date	Stream condition	Hardness (mg/L)	*Enterococcus* (MPN)	*E. coli* (MPN)	TPH (µg/L)
MDL	--	15	--	--	1500
Pre-Construction samples					
1/3/17	Storm	73	23,500	207,000	0.04
1/23/17	Storm	52	43,400	230,000	0.14
2/23/17	Baseflow	106	1,300	1,900	nd
3/1/17	Storm	107	45,000	120,000	0.49
3/31/17	Storm	62	37,400	203,000	0.15
4/6/17	Storm	50	62,200	231,000	0.15
5/5/17	Storm	73	155,000	240,000	0.09
5/25/17	Storm	64	175,000	2,240,000	0.10
6/19/17	Storm	91	192,000	1,630,000	0.11
7/6/17	Storm	48	105,000	4,180,000	0.12
8/7/17	Baseflow	127	26,000	240,000	nd
8/24/17	Baseflow	129	2,400	31,000	nd
9/26/17	Baseflow	128	1,300	31,000	nd
10/9/17	Storm	109	1,000,000	2,400,000	0.22
10/24/17	Storm	114	274,000	6,510,000	nd
10/29/17	Storm	70	712,000	16,500,000	nd
11/29/17	Baseflow	107	930	14,000	nd
12/24/17	Baseflow	95	--	--	nd
1/12/18	Storm	60	19,200	240,000	nd
1/26/18	Baseflow	110	63	2,900	nd

Notes: The EMCs presented here for all species except TPH were calculated by replacing 'non-detects" with respective MDL.

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Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured; nd, not detected above MDL]

		UPSTREAM (01636845)			
Event date	Stream condition	Hardness (mg/L)	*Enterococcus* (MPN)	*E. coli* (MPN)	[1]TPH (µg/L)
MDL	--	15	--	--	1500
		Construction samples			
2/7/18	Storm	59	2,200	69,800	0.09
2/11/18	Storm	81	2,600	194,000	0.01
2/23/18	Storm	--	--	--	nd
3/23/18	Baseflow	122	350	3,000	0.01
4/15/18	Storm	49	22,800	188,000	nd
4/27/18	Storm	88	8,820	54,800	nd
5/6/18	Baseflow	102	33,000	170,000	nd
5/22/18	Storm	50	65,700	2,290,000	nd
7/16/18	Baseflow	99	1,400	17,000	nd
9/9/18	Storm	38	42,500	2,330,000	nd
9/17/18	Storm	95	97,900	2,370,000	nd
10/26/18	Storm	89	55,400	2,210,000	nd
11/9/18	Storm	73	38,000	702,000	nd
11/29/18	Baseflow	88	580	3,100	nd
12/15/18	Storm	54	26,700	601,000	0.01
12/20/18	Storm	74	7,930	130,000	nd
2/3/19	Baseflow	--	51	1,100	nd
2/6/19	Storm	86	338	8,820	nd
2/11/19	Storm	49	1,930	24,900	nd
2/21/19	Storm	91	2,900	10,200	nd
3/21/19	Storm	48	17,400	665,400	0.01

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Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured; nd, not detected above MDL]

UPSTREAM (01636845)					
Event date	Stream condition	Hardness (mg/L)	*Enterococcus* (MPN)	*E. coli* (MPN)	TPH (µg/L)
MDL	--	15	--	--	1500
Post-Construction samples					
4/19/19	Storm	80	14,200	680,000	nd
4/26/19	Storm	86	47,200	98,800	nd
5/23/19	Storm	81	83,700	576,000	nd
5/30/19	Baseflow	105	5,200	19,000	nd
6/13/19	Storm	90	17,200	240,000	nd
6/27/19	Baseflow	96	1,400	19,000	nd
6/29/19	Storm	96	8,520	313,000	nd
7/31/19	Baseflow	105	860	28,000	nd
8/18/19	Storm	70	128,000	240,000	nd
9/30/19	Storm	118	3,860	54,800	nd
10/7/19	Storm	107	47,400	240,000	0.02
10/22/19	Storm	104	46,800	214,000	0.01
10/30/19	Storm	113	239,000	1,400,000	nd
11/24/19	Storm	103	16,300	178,000	nd
1/25/20	Storm	48	9,740	230,000	nd
2/6/20	Storm	77	12,200	53,700	nd
3/13/20	Storm	89	6,400	11,500	nd
4/13/20	Storm	71	52,800	206,000	nd
4/24/20	Storm	80	19,100	125,000	nd
4/30/20	Storm	37	72,100	226,000	nd
6/6/22	Baseflow	110	--	3,255	nd
6/27/22	Storm	126	--	14,507	1.6
7/18/22	Storm	110	--	241,960	2.05
8/30/22	Storm	163	--	2,020	1.63
9/22/22	Storm	153	--	1,736	1.63
10/1/22	Storm	94	--	126,148	1.6
10/13/22	Storm	133	--	18,402	1.63
11/11/22	Storm	106	--	18,3283	2.04
1/31/23	Baseflow	120	--	200	1.6
2/16/23	Storm	94	--	8,819	1.56
3/10/23	Storm	107	--	734	1.56
3/24/23	Storm	101	--	14,646	1.55
4/28/23	Storm	73	--	31,877	1.55
6/12/23	Storm	114	--	3,751	1.93
6/30/23	Baseflow	99	--	934	1.5

Notes: The EMCs presented here for all species except TPH were calculated by replacing 'non-detects" with respective MDL.

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Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured; nd, not detected above MDL]

UPSTREAM (01636845)					
Event date	Stream condition	Hardness (mg/L)	*Enterococcus* (MPN)	*E. coli* (MPN)	TPH (µg/L)
MDL	--	15	--	--	1500
Post-Construction samples					
8/7/23	Storm	95	--	171,406	1.65
9/17/23	Storm	186	--	4,110	1.56
9/23/23	Storm	110	--	225,759	1.5
11/21/23	Storm	161	--	34,541	1.51
12/10/23	Storm	109	--	20,123	1.56
12/17/23	Storm	73	--	14,240	1.55
1/9/24	Storm	97	--	2,389	1.56
3/9/24	Storm	96	--	9,417	1.64
3/23/24	Storm	91	--	16,251	1.57
5/4/24	Storm	76	--	46,333	1.6
6/5/24	Storm	103	--	4,6591	1.56
6/28/24	Baseflow	130	--	1,274	1.6

Notes: The EMCs presented here for all species except TPH were calculated by replacing ‘non-detects” with respective MDL.

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Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured]; nd, not detected above MDL]

DOWNSTREAM (01636846)							
Event date	Stream condition	Average temperature (ºF)	pH (standard units)	BOD-5 (mg/L)	Total Kjeldahl nitrogen (mg/L)	Nitrite + Nitrate (mg/L)	Total phosphorous (mg/L)
MDL	--	--	--	2	0.5	0.04	0.05
Pre-Construction Samples							
1/23/17	Storm	40	7.5	5.4	1.34	1.3	3.459
2/23/17	Baseflow	51	7.6	1.1	0.12	4.2	0.046
3/1/17	Storm	54	7.6	1.9	0.48	3.0	0.138
3/31/17	Storm	47	7.4	9.2	3.09	1.8	2.126
4/6/17	Storm	55	7.5	22	1.45	1.3	3.057
5/5/17	Storm	57	7.2	18	2.40	2.1	1.738
5/25/17	Storm	58	7.4	11	1.91	2.4	1.573
6/19/17	Storm	76	7.3	27	1.42	1.9	1.120
7/6/17	Storm	73	7.2	7.9	1.72	3.2	1.663
8/7/17	Baseflow	69	7.4	1.0	0.40	3.1	0.093
8/24/17	Baseflow	73	7.5	1.0	0.38	2.7	0.102
9/26/17	Baseflow	70	7.5	1.0	0.46	2.1	0.081
10/9/17	Storm	71	7.3	9.0	0.73	2.0	0.546
10/24/17	Storm	63	7.4	0.0	0.45	1.2	0.216
10/29/17	Storm	52	7.3	41	1.65	2.5	2.075
11/29/17	Baseflow	43	7.8	1.9	0.09	4.0	0.039
12/20/17	Storm	43	7.6	1.7	4.01	0.0	0.033
1/12/18	Storm	33	7.3	8.6	1.08	3.1	0.363
1/26/18	Baseflow	33	7.4	2.2	0.60	4.83	0.067

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DOWNSTREAM (01636846)							
Event date	Stream condition	Average temperature (ºF)	pH (standard units)	BOD-5 (mg/L)	Total Kjeldahl nitrogen (mg/L)	Nitrite + Nitrate (mg/L)	Total phosphorous (mg/L)
MDL	--	--	--	2	0.5	0.04	0.05
Construction Samples							
2/7/18	Storm	35	7.4	--	0.61	4.3	0.134
2/11/18	Storm	38	7.4	--	1.15	3.0	0.743
2/23/18	Storm	45	7.5	--	0.92	2.6	0.930
3/2/18	Storm	44	7.5	5.5	0.57	2.7	0.314
3/23/18	Baseflow	37	8.1	2.9	0.01	4.2	0.036
4/16/18	Storm	47	7.3	10.1	1.25	1.7	1.458
4/27/18	Storm	56	7.7	4.3	0.63	2.8	0.097
5/14/18	Storm	67	7.1	3.6	0.76	2.2	0.451
5/22/18	Storm	70	7.5	16	0.87	2.0	5.13
6/2/18	Storm	74	6.7	13.1	1.45	1.3	1.960
6/20/18	Storm	75	8.5	--	1.60	3.2	0.934
7/16/18	Baseflow	77	7.7	--	0.36	3.4	0.079
8/21/18	Storm	72	7.2	11	1.05	1.3	1.68
9/17/18	Storm	72	7.6	6.9	0.68	3.2	0.508
10/26/18	Storm	51	7.6	6.8	0.85	2.7	0.586
11/9/18	Storm	--	--	0.0	0.68	2.6	0.847
11/29/18	Baseflow	40	7.6	2.3	0.37	4.9	0.049
12/15/18	Storm	43	7.6	17	1.73	2.4	2.529
12/21/18	Storm	46	7.6	8.0	0.85	1.7	0.500
2/3/19	Baseflow	39	7.5	22	0.81	4.4	0.090
2/6/19	Storm	45	7.7	5.3	0.57	3.9	0.129
2/11/19	Storm	35	7.5	6.6	0.64	1.7	0.908
2/21/19	Storm	45	7.5	6.3	0.68	3.1	0.249
3/21/19	Storm	44	7.4	13	1.40	2.0	2.396

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DOWNSTREAM (01636846)							
Event date	Stream condition	Average temperature (ºF)	pH (standard units)	BOD-5 (mg/L)	Total Kjeldahl nitrogen (mg/L)	Nitrite + Nitrate (mg/L)	Total phosphorous (mg/L)
MDL	--	--	--	2	0.5	0.04	0.05
Post-Construction Samples							
4/19/19	Storm	64	7.8	2.8	0.60	2.70	0.118
4/26/19	Storm	64	7.8	8.7	0.76	2.99	0.128
5/23/19	Storm	73	7.6	10	0.80	3.14	0.393
5/30/19	Baseflow	76	8.0	1.8	0.60	3.50	0.075
6/13/19	Storm	65	7.5	3.8	0.71	2.95	0.543
6/27/19	Baseflow	77	8.8	3.1	0.43	2.93	0.091
6/29/19	Storm	78	7.7	15	0.65	2.60	0.206
7/31/19	Baseflow	75	7.8	2.4	0.51	2.76	0.092
8/18/19	Storm	75	7.2	14	0.93	2.31	0.920
9/30/19	Storm	69	7.3	2.8	0.44	2.01	0.106
10/7/19	Storm	63	7.2	4.7	0.63	2.21	0.287
10/22/19	Storm	57	7.4	2.6	0.46	2.02	0.201
10/30/19	Storm	60	7.5	3.1	0.69	1.86	0.221
11/24/19	Storm	42	7.4	7.6	0.92	2.70	0.325
1/25/20	Storm	38	7.5	14	1.02	1.80	1.713
2/6/20	Storm	43	7.5	3.9	2.25	0.97	0.230
3/13/20	Storm	52	7.7	1.9	0.61	3.30	0.068
4/13/20	Storm	57	7.5	5.3	0.89	1.51	0.300
4/23/20	Storm	52	7.4	12	0.91	2.03	0.254
4/30/20	Storm	57	7.2	15	0.98	1.14	1.034
6/6/22	Baseflow	66	7.7	2.0	0.64	2.4	0.092
6/27/22	Storm	74	7.4	2.0	0.857	1.85	0.168
7/18/22	Storm	56.4	7.6	2.3	0.80	1.13	0.119
8/30/22	Storm	56.9	7.5	2.0	0.38	0.69	0.086
9/22/22	Storm	52.4	7.6	2.0	0.51	0.81	0.110
10/1/22	Storm	46.1	7.3	6.14	1.7	1.5	0.357
10/13/22	Storm	47.6	7.3	4.1	1.00	1.69	0.086
11/11/22	Storm	45.5	7.1	15.4	1.74	1.50	0.745
1/31/23	Baseflow	42.3	7.8	2.0	0.5	4.1	0.05
2/16/23	Storm	41.0	7.4	5.7	1.63	1.59	0.323
3/10/23	Storm	38.7	7.6	7.6	0.84	4.27	0.082
3/24/23	Storm	43.1	7.4	4.2	1.63	2.88	0.149
4/28/23	Storm	44.9	7.6	5.7	1.45	1.50	0.198
6/12/23	Storm	52.3	7.5	2.0	0.75	1.00	0.128
6/30/23	Baseflow	52.5	7.6	1.5	0.81	0.46	0.05

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DOWNSTREAM (01636846)							
Event date	Stream condition	Average temperature (ºF)	pH (standard units)	BOD-5 (mg/L)	Total Kjeldahl nitrogen (mg/L)	Nitrite + Nitrate (mg/L)	Total phosphorous (mg/L)
MDL	--	--	--	2	0.5	0.04	0.05
Post-Construction Samples							
8/7/23	Storm	73.6	7.5	13.3	1.35	0.43	0.219
9/17/23	Storm	60.6	7.7	3.8	1.84	0.11	0.329
9/23/23	Storm	61.7	7.3	2.2	1.57	0.07	0.188
11/21/23	Storm	42.8	7.4	4.7	1.66	1.58	0.271
12/10/23	Storm	41.5	7.4	3.5	1.85	1.84	0.303
12/17/23	Storm	44.4	7.3	2.8	1.36	1.50	0.369
1/9/24	Storm	40.1	7.5	2.1	0.89	2.00	0.162
3/9/24	Storm	46.9	7.4	2.6	3.98	0.90	0.441
3/23/24	Storm	46.2	7.5	12.1	2.00	1.95	0.320
5/4/24	Storm	57.6	7.1	3.1	1.19	1.77	0.133
6/5/24	Storm	69.6	7.1	5.2	1.02	1.50	0.141
6/28/24	Baseflow	71.2	7.5	2.0	0.60	1.4	0.081

Notes: The EMCs presented here for all species except TPH were calculated by replacing 'non-detects" with respective MDL.

EMC for TPH were calculated by replacing non-detected values with null (0) concentration. Values reported as nd (not detected) indicates that all components of TPH were below their respective MDL

Shaded values had one or more sub-samples with a concentration reported below the MDL.

Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured; nd, not detected above MDL]

			DOWNSTREAM (01636846)			
Event date	Stream condition	Suspended sediment (mg/L)	Total suspended solids (mg/L)	Dissolved copper (µg/L)	Dissolved lead (µg/L)	Dissolved zinc (µg/L)
MDL		1	1	0.36	0.071	4
			Pre-Construction Samples			
1/23/17	Storm	1,380	1,110	31.7	22.9	107
2/23/17	Baseflow	4	15	0.9	0.1	2
3/1/17	Storm	23	18	2.2	0.5	2
3/31/17	Storm	543	332	16.6	8.0	37
4/6/17	Storm	1,250	901	30.3	22.0	95
5/5/17	Storm	375	271	14.9	6.2	32
5/25/17	Storm	398	356	20.9	8.2	44
6/19/17	Storm	147	162	9.3	3.5	24
7/6/17	Storm	518	477	20.7	10.5	49
8/7/17	Baseflow	7	15	1.1	0.2	2
8/24/17	Baseflow	8	15	1.2	0.1	2
9/26/17	Baseflow	3	15	1.5	0.1	2
10/9/17	Storm	27	26	4.4	0.5	4
10/24/17	Storm	15	15	1.7	0.1	1
10/29/17	Storm	364	321	15.7	7.0	41
11/29/17	Baseflow	1	15	1.4	0.1	2
12/20/17	Storm	3	15	3.2	0.1	2
1/12/18	Storm	37	35	3.5	0.7	4
1/26/18	Baseflow	2	18	0.3	--	2

Notes: The EMCs presented here for all species except TPH were calculated by replacing ‘non-detects” with respective MDL.

EMC for TPH were calculated by replacing non-detected values with null (0) concentration. Values reported as nd (not detected) indicates that all components of TPH were below their respective MDL

Shaded values had one or more sub-samples with a concentration reported below the MDL.

Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (**01636845**) and downstream (**01636846**) stations on Little Catoctin Creek, Md. – continued.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured; nd, not detected above MDL]

DOWNSTREAM (01636846)						
Event date	Stream condition	Suspended sediment (mg/L)	Total suspended solids (mg/L)	Dissolved copper (µg/L)	Dissolved lead (µg/L)	Dissolved zinc (µg/L)
MDL		1	1	0.36	0.071	4
Construction Samples						
2/7/18	Storm	9	15	1.7	0.3	2
2/11/18	Storm	145	130	7.5	3.3	16
2/23/18	Storm	294	280	15.8	7.9	31
3/2/18	Storm	46	43	5.8	1.3	6
3/23/18	Baseflow	5	15	1.0	0.1	2
4/16/18	Storm	480	361	21.7	6.6	36
4/27/18	Storm	11	16	1.7	0.3	2
5/14/18	Storm	127	78	6.0	2.4	12
5/22/18	Storm	564	530	16.0	11.8	48
6/2/18	Storm	812	696	22.9	14.9	64
6/20/18	Storm	337	254	10.1	6.3	33
7/16/18	Baseflow	10	15	2.5	0.2	2
8/21/18	Storm	1,000	812	26.4	16.9	79
9/17/18	Storm	155	150	7.3	3.0	15
10/26/18	Storm	182	176	8.4	3.7	19
11/9/18	Storm	246	201	9.9	6.3	29
11/29/18	Baseflow	9	15	1.0	0.1	2
12/15/18	Storm	1178	771	36.4	20.6	93
12/21/18	Storm	110	85	8.6	2.4	14
2/3/19	Baseflow	--	--	--	--	--
2/6/19	Storm	107	26	3.8	0.7	6
2/11/19	Storm	537	435	13.4	10.3	41
2/21/19	Storm	85	73	3.2	1.5	12
3/21/19	Storm	1,310	1,160	35.5	23.4	103

Notes: The EMCs presented here for all species except TPH were calculated by replacing ‘non-detects” with respective MDL.

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Shaded values had one or more sub-samples with a concentration reported below the MDL.

Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured; nd, not detected above MDL]

DOWNSTREAM (01636846)						
Event date	Stream condition	Suspended sediment (mg/L)	Total suspended solids (mg/L)	Dissolved copper (µg/L)	Dissolved lead (µg/L)	Dissolved zinc (µg/L)
MDL	--	1	1	0.36	0.071	4
Post-Construction Samples						
4/19/19	Storm	82	24	2.6	0.62	4
4/26/19	Storm	15	15	1.6	0.38	4
5/23/19	Storm	68	90	11.0	2.36	14
5/30/19	Baseflow	12	15	1.4	0.24	2
6/13/19	Storm	81	108	6.0	2.00	12
6/27/19	Baseflow	8	15	1.0	0.16	2
6/29/19	Storm	4	15	8.7	0.27	8
7/31/19	Baseflow	6	15	1.5	0.14	2
8/18/19	Storm	169	152	12.7	3.29	21
9/30/19	Storm	6	18	5.7	0.14	3
10/7/19	Storm	24	23	7.6	0.43	4
10/22/19	Storm	12	15	3.6	0.23	11
10/30/19	Storm	14	15	8.9	0.27	4
11/24/19	Storm	42	36	6.6	0.84	7
1/25/20	Storm	1,210	1,005	48.3	20.6	104
2/6/20	Storm	28	26	11.2	0.76	6
3/13/20	Storm	15	15	7.8	0.33	4
4/13/20	Storm	46	45	11.7	1.07	9
4/23/20	Storm	308	28	13.9	0.78	9
4/30/20	Storm	641	648	18.1	288	60
6/6/22	Baseflow	--	8.1	0.7	0.1	4
6/27/22	Storm	--	5.7	0.997	0.209	4
7/18/22	Storm	--	1.0	1.1	0.31	4
8/30/22	Storm	--	2.6	0.75	0.074	4.5
9/22/22	Storm	--	4.8	1.0	0.39	4
10/1/22	Storm	--	11	3.2	0.292	4
10/13/22	Storm	--	5.2	1.6	0.12	4
11/11/22	Storm	--	38.1	5.7	0.93	9
1/31/23	Baseflow	--	1.2	0.65	0.071	4
2/16/23	Storm	--	56.4	4.4	1.47	8
3/10/23	Storm	--	4.3	0.7	0.07	4
3/24/23	Storm	--	8.8	2.5	0.41	4
4/28/23	Storm	--	16.3	3.0	0.53	5
6/12/23	Storm	--	21	1.2	0.31	4
6/30/23	Baseflow	--	10	0.83	0.3	4

Notes: The EMCs presented here for all species except TPH were calculated by replacing 'non-detects" with respective MDL.

EMC for TPH were calculated by replacing non-detected values with null (0) concentration. Values reported as nd (not detected) indicates that all components of TPH were below their respective MDL

Shaded values had one or more sub-samples with a concentration reported below the MDL.

Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured; nd, not detected above MDL]

DOWNSTREAM (01636846)						
Event date	Stream condition	Suspended sediment (mg/L)	Total suspended solids (mg/L)	Dissolved copper (µg/L)	Dissolved lead (µg/L)	Dissolved zinc (µg/L)
MDL	--	1	1	0.36	0.071	4
Post-Construction Samples						
8/7/23	Storm	--	40.4	3.6	1.08	4.0
9/17/23	Storm	--	69.3	2.2	1.00	10.0
9/23/23	Storm	--	29.9	2.7	0.47	5.1
11/21/23	Storm	--	13.9	2.8	0.55	4.4
12/10/23	Storm	--	8.3	4.1	0.40	4.8
12/17/23	Storm	--	20.2	5.1	0.98	5.8
1/9/24	Storm	--	3.4	2.5	0.37	4
3/9/24	Storm	--	71.7	7.2	2.53	16.8
3/23/24	Storm	--	39.0	5.9	0.99	9.2
5/4/24	Storm	--	16.1	2.0	0.26	4
6/5/24	Storm	--	9.1	1.8	0.26	4
6/28/24	Baseflow	--	3.2	0.7	0.12	4

Notes: The EMCs presented here for all species except TPH were calculated by replacing ‘non-detects” with respective MDL.

EMC for TPH were calculated by replacing non-detected values with null (0) concentration. Values reported as nd (not detected) indicates that all components of TPH were below their respective MDL

Shaded values had one or more sub-samples with a concentration reported below the MDL.

Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number--, not measured; nd, not detected above MDL]

DOWNSTREAM (01636846)					
Event date	Stream condition	Hardness (mg/L)	*Enterococcus* (MPN)	*E. coli* (MPN)	TPH (µg/L)
MDL		15	--	--	1500
Pre-Construction Samples					
1/23/17	Storm	62	46,100	216,000	0.15
2/23/17	Baseflow	105	640	1,400	nd
3/1/17	Storm	102	2,390	18,800	nd
3/31/17	Storm	54	41,700	228,000	0.06
4/6/17	Storm	61	50,500	212,000	0.12
5/5/17	Storm	70	129,000	240,000	nd
5/25/17	Storm	63	132,000	1,720,000	0.08
6/19/17	Storm	95	994,000	2,070,000	0.05
7/6/17	Storm	51	83,800	2,770,000	0.12
8/7/17	Baseflow	116	2,200	80,000	nd
8/24/17	Baseflow	124	830	61,000	nd
9/26/17	Baseflow	133	590	41,000	nd
10/9/17	Storm	116	699,000	2,090,000	0.03
10/24/17	Storm	44	126,000	3,230,000	nd
10/29/17	Storm	62	365,000	5,180,000	nd
11/29/17	Baseflow	114	980	17,000	nd
12/20/17	Storm	103	310	16,000	nd
1/12/18	Storm	78	3,490	214,000	nd
1/26/18	Baseflow	39	21	4,500	nd

Notes: The EMCs presented here for all species except TPH were calculated by replacing ‘non-detects” with respective MDL.

EMC for TPH were calculated by replacing non-detected values with null (0) concentration. Values reported as nd (not detected) indicates that all components of TPH were below their respective MDL

Shaded values had one or more sub-samples with a concentration reported below the MDL.

Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured; nd, not detected above MDL]

DOWNSTREAM (01636846)					
Event date	Stream condition	Hardness (mg/L)	*Enterococcus* (MPN)	*E. coli* (MPN)	TPH (µg/L)
MDL	--	15	--	--	1500
Construction Samples					
2/7/18	Storm	92	310	34,000	nd
2/11/18	Storm	82	3,240	115,000	0.01
2/23/18	Storm	85	9,100	82,000	nd
3/2/18	Storm	94	2,600	39,000	nd
3/23/18	Baseflow	120	300	3,700	0.01
4/16/18	Storm	46	11,100	227,000	nd
4/27/18	Storm	91	8,020	60,200	nd
5/14/18	Storm	63	19,600	305,000	nd
5/22/18	Storm	54	40,000	2,250,000	nd
6/2/18	Storm	54	38,000	2,400,000	nd
6/20/18	Storm	101	79,000	2,400,000	nd
7/16/18	Baseflow	104	590	25,000	nd
8/21/18	Storm	58	307,000	2,400,000	nd
9/17/18	Storm	99	130,000	2,600,000	nd
10/26/18	Storm	90	23,700	1,920,000	nd
11/9/18	Storm	77	--	--	nd
11/29/18	Baseflow	91	210	3,500	nd
12/15/18	Storm	62	22,200	533,000	0.01
12/21/18	Storm	57	6,740	174,000	nd
2/3/19	Baseflow	--	52	2,500	nd
2/6/19	Storm	89	1,070	12,600	nd
2/11/19	Storm	52	1,660	24,900	nd
2/21/19	Storm	98	3,750	12,800	nd
3/21/19	Storm	52	13,600	57,700	0.01

Notes: The EMCs presented here for all species except TPH were calculated by replacing 'non-detects" with respective MDL.

EMC for TPH were calculated by replacing non-detected values with null (0) concentration. Values reported as nd (not detected) indicates that all components of TPH were below their respective MDL

Shaded values had one or more sub-samples with a concentration reported below the MDL.

Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured; nd, not detected above MDL]

DOWNSTREAM (01636846)					
Event date	Stream condition	Hardness (mg/L)	*Enterococcus* (MPN)	*E. coli* (MPN)	TPH (µg/L)
MDL	--	15	--	--	1500
Post-Construction Samples					
4/19/19	Storm	90	2,770	19,400	nd
4/26/19	Storm	90	34,800	127,000	nd
5/23/19	Storm	84	62,700	539,000	nd
5/30/19	Baseflow	90	1,500	20,000	nd
6/13/19	Storm	94	60,100	240,000	nd
6/27/19	Baseflow	96	2,500	18,000	nd
6/29/19	Storm	100	9,460	1,190,000	nd
7/31/19	Baseflow	110	39,000	990	nd
8/18/19	Storm	79	1,710,000	12,3000	nd
9/30/19	Storm	113	125,000	3,440	nd
10/7/19	Storm	119	240,000	172,000	nd
10/22/19	Storm	121	172,000	7,320	nd
10/30/19	Storm	116	132,000	14,800	0.02
11/24/19	Storm	106	161,000	7,020	nd
1/25/20	Storm	58	217,000	21,800	nd
2/6/20	Storm	83	35,400	3,540	nd
3/13/20	Storm	95	6,400	1,650	nd
4/13/20	Storm	71	163,000	19,000	nd
4/23/20	Storm	82	198,000	19,700	nd
4/30/20	Storm	29	90,800	79,900	0.19
6/6/22	Baseflow	140	--	908	nd
6/27/22	Storm	127	--	798	1.7
7/18/22	Storm	124	--	42,388	1.63
8/30/22	Storm	163	--	9,474	1.43
9/22/22	Storm	172	--	3,443	1.60
10/1/22	Storm	163	--	9,476	1.93
10/13/22	Storm	110	--	78,162	0.431
11/11/22	Storm	131	--	138,440	2.74
1/31/23	Baseflow	120	--	100	1.6
2/16/23	Storm	102	--	5,510	1.56
3/10/23	Storm	107	--	320	1.53
3/24/23	Storm	110	--	4,181	1.57
4/28/23	Storm	113	--	18,335	1.90
6/12/23	Storm	121	--	8,225	1.68
6/30/23	Baseflow	130	--	842	1.60

Notes: The EMCs presented here for all species except TPH were calculated by replacing 'non-detects" with respective MDL.

EMC for TPH were calculated by replacing non-detected values with null (0) concentration. Values reported as nd (not detected) indicates that all components of TPH were below their respective MDL

Shaded values had one or more sub-samples with a concentration reported below the MDL.

Table 8. Event mean concentrations measured in samples collected during storms and low-flow at the upstream (01636845) and downstream (01636846) stations on Little Catoctin Creek, Md. – continued.

[kg/L, kilograms per liter; mg/L, milligrams per liter; µg/L, micrograms per liter; MDL, method detection level; MPN, most probable number; --, not measured; nd, not detected above MDL]

DOWNSTREAM (01636846)					
Event date	Stream condition	Hardness (mg/L)	*Enterococcus* (MPN)	*E. coli* (MPN)	TPH (µg/L)
MDL	--	15	--	--	1500
Post-Construction Samples					
8/7/23	Storm	134	--	36,743	1.63
9/17/23	Storm	179	--	3,306	1.50
9/23/23	Storm	132	--	67,464	1.51
11/21/23	Storm	124	--	35,606	1.12
12/10/23	Storm	119	--	14,605	1.53
12/17/23	Storm	77	--	9,801	1.55
1/9/24	Storm	110	--	761	1.69
3/9/24	Storm	78	--	8,927	1.60
3/23/24	Storm	94	--	22,193	1.60
5/4/24	Storm	96	--	49,618	1.50
6/5/24	Storm	78	--	2,4518	1.53
6/28/24	Baseflow	140	--	1,178	1.60

Notes: The EMCs presented here for all species except TPH were calculated by replacing 'non-detects" with respective MDL.

EMC for TPH were calculated by replacing non-detected values with null (0) concentration. Values reported as nd (not detected) indicates that all components of TPH were below their respective MDL

Shaded values had one or more sub-samples with a concentration reported below the MDL.

3.4 Evaluation of BMP Efficiency

BMP performance of the stream restoration project was assessed by comparing EMCs entering the study reach at monitoring station 01636845 (i.e., influent concentrations) with those exiting the study reach at monitoring station 01636846 (i.e., effluent concentrations) for select parameters. Influent and effluent EMC data for Total Nitrogen (TN), Total Phosphorus (TP), and Total Suspended Solids (TSS) were compared during each study phase to determine the statistical significance of EMC reductions and to compare performance across each phase. Total Nitrogen, calculated as the sum of Total Kjeldahl Nitrogen and Nitrate + Nitrite EMCs, was used to better align with MDE's guidance for pollutant load reductions from alternative BMPs (MDE, 2021).

Paired statistical analyses were performed using XLSTAT version 2024.2.2 (Lumivero, 2024). Before data were compared for statistical significance, each parameter was tested for normality using the Shapiro-Wilk W Test (Shapiro et al., 1968). Since these parameters exhibited nonnormal distributions, paired samples were compared using the non-parametric Wilcoxon signed-rank test (Wilcoxon, 1945).

Results of the non-parametric Wilcoxon signed-rank test comparing paired samples (i.e., influent and effluent EMCs for each storm event) are presented in Table 9 for each study phase. During the pre-construction phase, statistically significant reductions (at 95% confidence) were observed for TN only ($p = 0.034$, $\alpha = 0.05$). There were no statistically significant reductions observed in any parameters during the construction phase. During the post-construction phase, statistically significant reductions were observed for TN ($p < 0.0001$, $\alpha = 0.05$), TP ($p < 0.0001$, $\alpha = 0.05$), and TSS ($p = 0.003$, $\alpha = 0.05$). Box plots comparing the upstream and downstream EMCs for each study phase is presented in Attachment B.

Table 9. Wilcoxon Signed-Rank test of storm flow EMCs

	Study Phase								
	Pre-Construction			Construction			Post-Construction		
	TN	TP	TSS	TN	TP	TSS	TN	TP	TSS
V	66	57	51	61	51	33	702	766	575
V (standardized)	-	-	-	-	-	-	3.92	-	2.97
Expected value	39	39	39	60	60	60	410	410	371
Variance (V)	162.5	162.5	162.5	310.0	310.0	310.0	5534.9	5535	4754.8
p-value (Two-tailed)	**0.034**	0.176	0.380	0.978	0.639	0.135	**<0.0001**	**<0.0001**	**0.003**
alpha	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.050	0.05

Note: Bold values indicate statistical significance

4 Conclusions

The results of this study suggest that the Little Catoctin Creek stream restoration project has been successful at reducing TN, TP and TSS concentrations in the watershed. However, it should be noted that pollutant load reductions attributable to the project were not quantified as they were beyond the scope of this report. Direct comparisons of pollutant loads would be particularly challenging due to considerable variations in precipitation conditions experienced throughout the study phases. For instance, the pre-construction phase experienced precipitation conditions well below average, while the subsequent construction phase experienced record setting annual precipitation. Therefore, it was decided that the analysis would focus on direct comparisons of event mean concentrations that are not skewed by fluctuations in precipitation conditions across the study phases. Nevertheless, it has been demonstrated that statistically significant reductions pollutant concentrations can be directly attributed to the stream restoration project.

5 References

Lumivero (2024). XLSTAT statistical and data analysis solution. https://www.xlstat.com/en.

Maryland Department of the Environment. 2021. Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated - Guidance for National Pollutant Discharge Elimination System Stormwater Permits. Prepared by Maryland Department of the Environment, Baltimore, Maryland. November 2021. https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/Final%20Determination%20Dox%20N5%202021/MS4%20Accounting%20Guidance%20FINAL%2011%2005%202021.pdf

Maryland State Highway Administration. 2016. NPDES/MS4 Assessment of Controls for Stream Restoration of Little Catoctin Creek at U.S. 340 Frederick County Maryland. Prepared by the Office of Environmental Design, Baltimore, Maryland.

Shapiro S. S. and Wilk M. B. (1965). An analysis of variance test for normality (complete samples). Biometrika, 52, 3 and 4, 591-611.

Wilcoxon F. 1945. Individual comparisons by ranking methods. Biometrics, 1:80-83.

ATTACHMENT A: CHEMICAL MONITORING DATA

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Upstream	2	LCC22-BF01-U	BOD	Biochemical Oxygen Demand	6/6/2022 10:15	0	2	418.1259843	mg/l	2
Upstream	2	LCC22-BF01-U	E. coli	E. coli	6/6/2022 10:15	3255	3255	418.1259843	MPN/100 ml	1
Upstream	2	LCC22-BF01-U	Inorganics	Hardness as calcium carbonate	6/6/2022 10:15	110	110	418.1259843	mg/l	7.5
Upstream	2	LCC22-BF01-U	Inorganics	Nitrate Nitrite as N	6/6/2022 10:15	2.7	2.7	418.1259843	mg/l	0.04
Upstream	2	LCC22-BF01-U	Inorganics	Total Kjeldahl Nitrogen	6/6/2022 10:15	200	200	418.1259843	mg/l	50
Upstream	2	LCC22-BF01-U	Inorganics	Total Phosphorus as P	6/6/2022 10:15	0.093	0.093	418.1259843	mg/l	0.05
Upstream	2	LCC22-BF01-U	Inorganics	Total Suspended Solids	6/6/2022 10:15	3	3	418.1259843	mg/l	1
Upstream	2	LCC22-BF01-U	Metals	Copper	6/6/2022 10:15	0.66	0.66	418.1259843	ug/l	0.36
Upstream	2	LCC22-BF01-U	Metals	Lead	6/6/2022 10:15	0.11	0.11	418.1259843	ug/l	0.071
Upstream	2	LCC22-BF01-U	Metals	Zinc	6/6/2022 10:15	0	4	418.1259843	ug/l	4
Upstream	2	LCC22-BF01-U	Oil & Grease	SGT-HEM (TPH)	6/6/2022 10:15	0	1.5	418.1259843	mg/l	1.5
Downstream	8	LCC22-BF01-D	BOD	Biochemical Oxygen Demand	6/6/2022 11:45	0	2	396.4676661	mg/l	2
Downstream	8	LCC22-BF01-D	E. coli	E. coli	6/6/2022 11:45	908	908	396.4676661	MPN/100 ml	1
Downstream	8	LCC22-BF01-D	Inorganics	Hardness as calcium carbonate	6/6/2022 11:45	140	140	396.4676661	mg/l	7.5
Downstream	8	LCC22-BF01-D	Inorganics	Nitrate Nitrite as N	6/6/2022 11:45	2.4	2.4	396.4676661	mg/l	0.04
Downstream	8	LCC22-BF01-D	Inorganics	Total Kjeldahl Nitrogen	6/6/2022 11:45	0.64	0.64	396.4676661	mg/l	0.5
Downstream	8	LCC22-BF01-D	Inorganics	Total Phosphorus as P	6/6/2022 11:45	0.092	0.092	396.4676661	mg/l	0.05
Downstream	8	LCC22-BF01-D	Inorganics	Total Suspended Solids	6/6/2022 11:45	8.1	8.1	396.4676661	mg/l	1
Downstream	8	LCC22-BF01-D	Metals	Copper	6/6/2022 11:45	0.74	0.74	396.4676661	ug/l	0.36
Downstream	8	LCC22-BF01-D	Metals	Lead	6/6/2022 11:45	0.097	0.097	396.4676661	ug/l	0.071
Downstream	8	LCC22-BF01-D	Metals	Zinc	6/6/2022 11:45	0	4	396.4676661	ug/l	4
Downstream	8	LCC22-BF01-D	Oil & Grease	SGT-HEM (TPH)	6/6/2022 11:45	0	1.5	396.4676661	mg/l	1.5
Upstream	4	LCC22-RI-01	BOD	Biochemical Oxygen Demand	6/27/2022 10:25	0	2	418.1259843	mg/l	2
Upstream	4	LCC22-RI-01	E. coli	E. coli	6/27/2022 10:25	3873	3873	418.1259843	MPN/100 ml	10
Upstream	4	LCC22-RI-01	Inorganics	Hardness as calcium carbonate	6/27/2022 10:25	160	160	418.1259843	mg/l	15
Upstream	4	LCC22-RI-01	Inorganics	Nitrate Nitrite as N	6/27/2022 10:25	2.1	2.1	418.1259843	mg/l	0.04
Upstream	4	LCC22-RI-01	Inorganics	Total Kjeldahl Nitrogen	6/27/2022 10:25	1.4	1.4	418.1259843	mg/l	0.5
Upstream	4	LCC22-RI-01	Inorganics	Total Phosphorus as P	6/27/2022 10:25	0.39	0.39	418.1259843	mg/l	0.05
Upstream	4	LCC22-RI-01	Inorganics	Total Suspended Solids	6/27/2022 10:25	4.8	4.8	418.1259843	mg/l	1
Upstream	4	LCC22-RI-01	Metals	Copper	6/27/2022 10:25	3	3	418.1259843	ug/l	0.36
Upstream	4	LCC22-RI-01	Metals	Lead	6/27/2022 10:25	2.1	2.1	418.1259843	ug/l	0.071
Upstream	4	LCC22-RI-01	Metals	Zinc	6/27/2022 10:25	8	8	418.1259843	ug/l	4
Upstream	4	LCC22-RI-01	Oil & Grease	SGT-HEM (TPH)	6/27/2022 10:25	0	1.7	418.1259843	mg/l	1.7
Upstream	4	LCC22-P-01-U	BOD	Biochemical Oxygen Demand	6/27/2022 13:30	0	2	418.1259843	mg/l	2
Upstream	4	LCC22-P-01-U	E. coli	E. coli	6/27/2022 13:30	20640	20640	418.1259843	MPN/100 ml	100
Upstream	4	LCC22-P-01-U	Inorganics	Hardness as calcium carbonate	6/27/2022 13:30	110	110	418.1259843	mg/l	15
Upstream	4	LCC22-P-01-U	Inorganics	Nitrate Nitrite as N	6/27/2022 13:30	2	2	418.1259843	mg/l	0.04
Upstream	4	LCC22-P-01-U	Inorganics	Total Kjeldahl Nitrogen	6/27/2022 13:30	1.3	1.3	418.1259843	mg/l	0.5
Upstream	4	LCC22-P-01-U	Inorganics	Total Phosphorus as P	6/27/2022 13:30	0.15	0.15	418.1259843	mg/l	0.05
Upstream	4	LCC22-P-01-U	Inorganics	Total Suspended Solids	6/27/2022 13:30	5.8	5.8	418.1259843	mg/l	1
Upstream	4	LCC22-P-01-U	Metals	Copper	6/27/2022 13:30	0.86	0.86	418.1259843	ug/l	0.36
Upstream	4	LCC22-P-01-U	Metals	Lead	6/27/2022 13:30	0.17	0.17	418.1259843	ug/l	0.071
Upstream	4	LCC22-P-01-U	Metals	Zinc	6/27/2022 13:30	0	4	418.1259843	ug/l	4
Upstream	4	LCC22-P-01-U	Oil & Grease	SGT-HEM (TPH)	6/27/2022 13:30	0	1.6	418.1259843	mg/l	1.6
Upstream	4	LCC22-RE-01-U	BOD	Biochemical Oxygen Demand	6/27/2022 15:35	0	2	418.1259843	mg/l	2
Upstream	4	LCC22-RE-01-U	E. coli	E. coli	6/27/2022 15:35	12033	12033	418.1259843	MPN/100 ml	10
Upstream	4	LCC22-RE-01-U	Inorganics	Hardness as calcium carbonate	6/27/2022 15:35	130	130	418.1259843	mg/l	15
Upstream	4	LCC22-RE-01-U	Inorganics	Nitrate Nitrite as N	6/27/2022 15:35	2	2	418.1259843	mg/l	0.04
Upstream	4	LCC22-RE-01-U	Inorganics	Total Kjeldahl Nitrogen	6/27/2022 15:35	0.86	0.86	418.1259843	mg/l	0.5
Upstream	4	LCC22-RE-01-U	Inorganics	Total Phosphorus as P	6/27/2022 15:35	0.14	0.14	418.1259843	mg/l	0.05
Upstream	4	LCC22-RE-01-U	Inorganics	Total Suspended Solids	6/27/2022 15:35	4.2	4.2	418.1259843	mg/l	1

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Upstream	4	LCC22-RE-01-U	Metals	Copper	6/27/2022 15:35	0.85	0.85	418.1259843	ug/l	0.36
Upstream	4	LCC22-RE-01-U	Metals	Lead	6/27/2022 15:35	0.096	0.096	418.1259843	ug/l	0.071
Upstream	4	LCC22-RE-01-U	Metals	Zinc	6/27/2022 15:35	0	4	418.1259843	ug/l	4
Upstream	4	LCC22-RE-01-U	Oil & Grease	SGT-HEM (TPH)	6/27/2022 15:35	1.8	1.8	418.1259843	mg/l	1.5
Downstream	10	LCC22-RI-01-D	BOD	Biochemical Oxygen Demand	6/27/2022 11:15	0	2	394.41037	mg/l	2
Downstream	10	LCC22-RI-01-D	E. coli	E. coli	6/27/2022 11:15	959	959	394.41037	MPN/100 ml	10
Downstream	10	LCC22-RI-01-D	Inorganics	Hardness as calcium carbonate	6/27/2022 11:15	120	120	394.41037	mg/l	15
Downstream	10	LCC22-RI-01-D	Inorganics	Nitrate Nitrite as N	6/27/2022 11:15	1.7	1.7	394.41037	mg/l	0.04
Downstream	10	LCC22-RI-01-D	Inorganics	Total Kjeldahl Nitrogen	6/27/2022 11:15	0.7	0.7	394.41037	mg/l	0.5
Downstream	10	LCC22-RI-01-D	Inorganics	Total Phosphorus as P	6/27/2022 11:15	0.13	0.13	394.41037	mg/l	0.05
Downstream	10	LCC22-RI-01-D	Inorganics	Total Suspended Solids	6/27/2022 11:15	1.9	1.9	394.41037	mg/l	1
Downstream	10	LCC22-RI-01-D	Metals	Copper	6/27/2022 11:15	1.1	1.1	394.41037	ug/l	0.36
Downstream	10	LCC22-RI-01-D	Metals	Lead	6/27/2022 11:15	0.32	0.32	394.41037	ug/l	0.071
Downstream	10	LCC22-RI-01-D	Metals	Zinc	6/27/2022 11:15	0	4	394.41037	ug/l	4
Downstream	10	LCC22-RI-01-D	Oil & Grease	SGT-HEM (TPH)	6/27/2022 11:15	0	1.5	394.41037	mg/l	1.5
Downstream	10	LCC22-P-01-D	BOD	Biochemical Oxygen Demand	6/27/2022 14:40	0	2	394.4320325	mg/l	2
Downstream	10	LCC22-P-01-D	E. coli	E. coli	6/27/2022 14:40	776	776	394.4320325	MPN/100 ml	10
Downstream	10	LCC22-P-01-D	Inorganics	Hardness as calcium carbonate	6/27/2022 14:40	130	130	394.4320325	mg/l	15
Downstream	10	LCC22-P-01-D	Inorganics	Nitrate Nitrite as N	6/27/2022 14:40	1.9	1.9	394.4320325	mg/l	0.04
Downstream	10	LCC22-P-01-D	Inorganics	Total Kjeldahl Nitrogen	6/27/2022 14:40	0.93	0.93	394.4320325	mg/l	0.5
Downstream	10	LCC22-P-01-D	Inorganics	Total Phosphorus as P	6/27/2022 14:40	0.23	0.23	394.4320325	mg/l	0.05
Downstream	10	LCC22-P-01-D	Inorganics	Total Suspended Solids	6/27/2022 14:40	1.8	1.8	394.4320325	mg/l	1
Downstream	10	LCC22-P-01-D	Metals	Copper	6/27/2022 14:40	0.83	0.83	394.4320325	ug/l	0.36
Downstream	10	LCC22-P-01-D	Metals	Lead	6/27/2022 14:40	0	0.071	394.4320325	ug/l	0.071
Downstream	10	LCC22-P-01-D	Metals	Zinc	6/27/2022 14:40	0	4	394.4320325	ug/l	4
Downstream	10	LCC22-P-01-D	Oil & Grease	SGT-HEM (TPH)	6/27/2022 14:40	0	1.6	394.4320325	mg/l	1.6
Downstream	10	LCC22-RE-01-D	BOD	Biochemical Oxygen Demand	6/27/2022 15:15	0	2	394.4262285	mg/l	2
Downstream	10	LCC22-RE-01-D	E. coli	E. coli	6/27/2022 15:15	723	723	394.4262285	MPN/100 ml	10
Downstream	10	LCC22-RE-01-D	Inorganics	Hardness as calcium carbonate	6/27/2022 15:15	130	130	394.4262285	mg/l	15
Downstream	10	LCC22-RE-01-D	Inorganics	Nitrate Nitrite as N	6/27/2022 15:15	1.9	1.9	394.4262285	mg/l	0.04
Downstream	10	LCC22-RE-01-D	Inorganics	Total Kjeldahl Nitrogen	6/27/2022 15:15	0.88	0.88	394.4262285	mg/l	0.5
Downstream	10	LCC22-RE-01-D	Inorganics	Total Phosphorus as P	6/27/2022 15:15	0.13	0.13	394.4262285	mg/l	0.05
Downstream	10	LCC22-RE-01-D	Inorganics	Total Suspended Solids	6/27/2022 15:15	12	12	394.4262285	mg/l	1
Downstream	10	LCC22-RE-01-D	Metals	Copper	6/27/2022 15:15	1.1	1.1	394.4262285	ug/l	0.36
Downstream	10	LCC22-RE-01-D	Metals	Lead	6/27/2022 15:15	0.28	0.28	394.4262285	ug/l	0.071
Downstream	10	LCC22-RE-01-D	Metals	Zinc	6/27/2022 15:15	0	4	394.4262285	ug/l	4
Downstream	10	LCC22-RE-01-D	Oil & Grease	SGT-HEM (TPH)	6/27/2022 15:15	1.8	1.8	394.4262285	mg/l	1.7
Upstream	5	LCC22-RI-02-U	BOD	Biochemical Oxygen Demand	7/18/2022 15:45	29	29	418.1259843	mg/l	2
Upstream	5	LCC22-RI-02-U	E. coli	E. coli	7/18/2022 15:45	241960	241960	418.1259843	MPN/100 ml	100
Upstream	5	LCC22-RI-02-U	Inorganics	Hardness as calcium carbonate	7/18/2022 15:45	110	110	418.1259843	mg/l	30
Upstream	5	LCC22-RI-02-U	Inorganics	Nitrate Nitrite as N	7/18/2022 15:45	2.1	2.1	418.1259843	mg/l	0.04
Upstream	5	LCC22-RI-02-U	Inorganics	Total Kjeldahl Nitrogen	7/18/2022 15:45	3.4	3.4	418.1259843	mg/l	0.5
Upstream	5	LCC22-RI-02-U	Inorganics	Total Phosphorus as P	7/18/2022 15:45	1.3	1.3	418.1259843	mg/l	0.05
Upstream	5	LCC22-RI-02-U	Inorganics	Total Suspended Solids	7/18/2022 15:45	160	160	418.1259843	mg/l	10
Upstream	5	LCC22-RI-02-U	Metals	Copper	7/18/2022 15:45	13	13	418.1259843	ug/l	0.36
Upstream	5	LCC22-RI-02-U	Metals	Lead	7/18/2022 15:45	6.2	6.2	418.1259843	ug/l	0.071
Upstream	5	LCC22-RI-02-U	Metals	Zinc	7/18/2022 15:45	43	43	418.1259843	ug/l	4
Upstream	5	LCC22-RI-02-U	Oil & Grease	SGT-HEM (TPH)	7/18/2022 15:45	2.8	2.8	418.1259843	mg/l	1.7
Upstream	5	LCC22-P-02-U	BOD	Biochemical Oxygen Demand	7/18/2022 17:00	45	45	418.1358268	mg/l	2
Upstream	5	LCC22-P-02-U	E. coli	E. coli	7/18/2022 17:00	241960	241960	418.1358268	MPN/100 ml	100
Upstream	5	LCC22-P-02-U	Inorganics	Hardness as calcium carbonate	7/18/2022 17:00	110	110	418.1358268	mg/l	30

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Upstream	5	LCC22-P-02-U	Inorganics	Nitrate Nitrite as N	7/18/2022 17:00	2	2	418.1358268	mg/l	0.04
Upstream	5	LCC22-P-02-U	Inorganics	Total Kjeldahl Nitrogen	7/18/2022 17:00	6.9	6.9	418.1358268	mg/l	0.5
Upstream	5	LCC22-P-02-U	Inorganics	Total Phosphorus as P	7/18/2022 17:00	1.4	1.4	418.1358268	mg/l	0.05
Upstream	5	LCC22-P-02-U	Inorganics	Total Suspended Solids	7/18/2022 17:00	150	150	418.1358268	mg/l	10
Upstream	5	LCC22-P-02-U	Metals	Copper	7/18/2022 17:00	9.1	9.1	418.1358268	ug/l	0.36
Upstream	5	LCC22-P-02-U	Metals	Lead	7/18/2022 17:00	1.7	1.7	418.1358268	ug/l	0.071
Upstream	5	LCC22-P-02-U	Metals	Zinc	7/18/2022 17:00	22	22	418.1358268	ug/l	4
Upstream	5	LCC22-P-02-U	Oil & Grease	SGT-HEM (TPH)	7/18/2022 17:00	0	1.7	418.1358268	mg/l	1.7
Upstream	5	LCC22-RE-02-U	BOD	Biochemical Oxygen Demand	7/18/2022 17:30	45	45	418.0603675	mg/l	2
Upstream	5	LCC22-RE-02-U	E. coli	E. coli	7/18/2022 17:30	241960	241960	418.0603675	MPN/100 ml	100
Upstream	5	LCC22-RE-02-U	Inorganics	Hardness as calcium carbonate	7/18/2022 17:30	110	110	418.0603675	mg/l	30
Upstream	5	LCC22-RE-02-U	Inorganics	Nitrate Nitrite as N	7/18/2022 17:30	2	2	418.0603675	mg/l	0.04
Upstream	5	LCC22-RE-02-U	Inorganics	Total Kjeldahl Nitrogen	7/18/2022 17:30	5.1	5.1	418.0603675	mg/l	0.5
Upstream	5	LCC22-RE-02-U	Inorganics	Total Phosphorus as P	7/18/2022 17:30	1.4	1.4	418.0603675	mg/l	0.05
Upstream	5	LCC22-RE-02-U	Inorganics	Total Suspended Solids	7/18/2022 17:30	65	65	418.0603675	mg/l	4
Upstream	5	LCC22-RE-02-U	Metals	Copper	7/18/2022 17:30	8.5	8.5	418.0603675	ug/l	0.36
Upstream	5	LCC22-RE-02-U	Metals	Lead	7/18/2022 17:30	1.4	1.4	418.0603675	ug/l	0.071
Upstream	5	LCC22-RE-02-U	Metals	Zinc	7/18/2022 17:30	19	19	418.0603675	ug/l	4
Upstream	5	LCC22-RE-02-U	Oil & Grease	SGT-HEM (TPH)	7/18/2022 17:30	0	1.6	418.0603675	mg/l	1.6
Downstream	11	LCC22-RI-02-D	BOD	Biochemical Oxygen Demand	7/18/2022 16:20	0	2	394.4582326	mg/l	2
Downstream	11	LCC22-RI-02-D	E. coli	E. coli	7/18/2022 16:20	34480	34480	394.4582326	MPN/100 ml	100
Downstream	11	LCC22-RI-02-D	Inorganics	Hardness as calcium carbonate	7/18/2022 16:20	120	120	394.4582326	mg/l	30
Downstream	11	LCC22-RI-02-D	Inorganics	Nitrate Nitrite as N	7/18/2022 16:20	1.1	1.1	394.4582326	mg/l	0.04
Downstream	11	LCC22-RI-02-D	Inorganics	Total Kjeldahl Nitrogen	7/18/2022 16:20	0.56	0.56	394.4582326	mg/l	0.5
Downstream	11	LCC22-RI-02-D	Inorganics	Total Phosphorus as P	7/18/2022 16:20	0.11	0.11	394.4582326	mg/l	0.05
Downstream	11	LCC22-RI-02-D	Inorganics	Total Suspended Solids	7/18/2022 16:20	1.1	1.1	394.4582326	mg/l	1
Downstream	11	LCC22-RI-02-D	Metals	Copper	7/18/2022 16:20	1.3	1.3	394.4582326	ug/l	0.36
Downstream	11	LCC22-RI-02-D	Metals	Lead	7/18/2022 16:20	0.36	0.36	394.4582326	ug/l	0.071
Downstream	11	LCC22-RI-02-D	Metals	Zinc	7/18/2022 16:20	0	4	394.4582326	ug/l	4
Downstream	11	LCC22-RI-02-D	Oil & Grease	SGT-HEM (TPH)	7/18/2022 16:20	0	1.7	394.4582326	mg/l	1.7
Downstream	11	LCC22-P-02-D	BOD	Biochemical Oxygen Demand	7/18/2022 16:40	0	2	394.455765	mg/l	2
Downstream	11	LCC22-P-02-D	E. coli	E. coli	7/18/2022 16:40	48840	48840	394.455765	MPN/100 ml	100
Downstream	11	LCC22-P-02-D	Inorganics	Hardness as calcium carbonate	7/18/2022 16:40	120	120	394.455765	mg/l	30
Downstream	11	LCC22-P-02-D	Inorganics	Nitrate Nitrite as N	7/18/2022 16:40	1.2	1.2	394.455765	mg/l	0.04
Downstream	11	LCC22-P-02-D	Inorganics	Total Kjeldahl Nitrogen	7/18/2022 16:40	0	0.5	394.455765	mg/l	0.5
Downstream	11	LCC22-P-02-D	Inorganics	Total Phosphorus as P	7/18/2022 16:40	0.1	0.1	394.455765	mg/l	0.05
Downstream	11	LCC22-P-02-D	Inorganics	Total Suspended Solids	7/18/2022 16:40	0	1	394.455765	mg/l	1
Downstream	11	LCC22-P-02-D	Metals	Copper	7/18/2022 16:40	0.88	0.88	394.455765	ug/l	0.36
Downstream	11	LCC22-P-02-D	Metals	Lead	7/18/2022 16:40	0.22	0.22	394.455765	ug/l	0.071
Downstream	11	LCC22-P-02-D	Metals	Zinc	7/18/2022 16:40	0	4	394.455765	ug/l	4
Downstream	11	LCC22-P-02-D	Oil & Grease	SGT-HEM (TPH)	7/18/2022 16:40	0	1.6	394.455765	mg/l	1.6
Downstream	11	LCC22-RE-02-D	BOD	Biochemical Oxygen Demand	7/18/2022 17:50	2.8	2.8	394.5298018	mg/l	2
Downstream	11	LCC22-RE-02-D	E. coli	E. coli	7/18/2022 17:50	43520	43520	394.5298018	MPN/100 ml	100
Downstream	11	LCC22-RE-02-D	Inorganics	Hardness as calcium carbonate	7/18/2022 17:50	130	130	394.5298018	mg/l	30
Downstream	11	LCC22-RE-02-D	Inorganics	Nitrate Nitrite as N	7/18/2022 17:50	1.1	1.1	394.5298018	mg/l	0.04
Downstream	11	LCC22-RE-02-D	Inorganics	Total Kjeldahl Nitrogen	7/18/2022 17:50	1.2	1.2	394.5298018	mg/l	0.5
Downstream	11	LCC22-RE-02-D	Inorganics	Total Phosphorus as P	7/18/2022 17:50	0.14	0.14	394.5298018	mg/l	0.05
Downstream	11	LCC22-RE-02-D	Inorganics	Total Suspended Solids	7/18/2022 17:50	0	1	394.5298018	mg/l	1
Downstream	11	LCC22-RE-02-D	Metals	Copper	7/18/2022 17:50	1.2	1.2	394.5298018	ug/l	0.36
Downstream	11	LCC22-RE-02-D	Metals	Lead	7/18/2022 17:50	0.34	0.34	394.5298018	ug/l	0.071
Downstream	11	LCC22-RE-02-D	Metals	Zinc	7/18/2022 17:50	0	4	394.5298018	ug/l	4

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Downstream	11	LCC22-RE-02-D	Oil & Grease	SGT-HEM (TPH)	7/18/2022 17:50	0	1.6	394.5298018	mg/l	1.6
Upstream	6	LCC22-RI-03-U	BOD	Biochemical Oxygen Demand	8/30/2022 15:30	0	2	417.6272966	mg/l	2
Upstream	6	LCC22-RI-03-U	E. coli	E. coli	8/30/2022 15:30	1750	1750	417.6272966	MPN/100 ml	100
Upstream	6	LCC22-RI-03-U	Inorganics	Hardness as calcium carbonate	8/30/2022 15:30	150	150	417.6272966	mg/l	30
Upstream	6	LCC22-RI-03-U	Inorganics	Nitrate Nitrite as N	8/30/2022 15:30	0.95	0.95	417.6272966	mg/l	0.04
Upstream	6	LCC22-RI-03-U	Inorganics	Total Kjeldahl Nitrogen	8/30/2022 15:30	0.8	0.8	417.6272966	mg/l	0.5
Upstream	6	LCC22-RI-03-U	Inorganics	Total Phosphorus as P	8/30/2022 15:30	0.14	0.14	417.6272966	mg/l	0.05
Upstream	6	LCC22-RI-03-U	Inorganics	Total Suspended Solids	8/30/2022 15:30	5.8	5.8	417.6272966	mg/l	1
Upstream	6	LCC22-RI-03-U	Metals	Copper	8/30/2022 15:30	0.9	0.9	417.6272966	ug/l	0.36
Upstream	6	LCC22-RI-03-U	Metals	Lead	8/30/2022 15:30	0.17	0.17	417.6272966	ug/l	0.071
Upstream	6	LCC22-RI-03-U	Metals	Zinc	8/30/2022 15:30	0	4	417.6272966	ug/l	4
Upstream	6	LCC22-RI-03-U	Oil & Grease	SGT-HEM (TPH)	8/30/2022 15:30	0	1.6	417.6272966	mg/l	1.6
Upstream	6	LCC22-P-03-U	BOD	Biochemical Oxygen Demand	8/30/2022 17:30	0	2	417.6437008	mg/l	2
Upstream	6	LCC22-P-03-U	E. coli	E. coli	8/30/2022 17:30	1730	1730	417.6437008	MPN/100 ml	100
Upstream	6	LCC22-P-03-U	Inorganics	Hardness as calcium carbonate	8/30/2022 17:30	150	150	417.6437008	mg/l	30
Upstream	6	LCC22-P-03-U	Inorganics	Nitrate Nitrite as N	8/30/2022 17:30	0.91	0.91	417.6437008	mg/l	0.04
Upstream	6	LCC22-P-03-U	Inorganics	Total Kjeldahl Nitrogen	8/30/2022 17:30	0.66	0.66	417.6437008	mg/l	0.5
Upstream	6	LCC22-P-03-U	Inorganics	Total Phosphorus as P	8/30/2022 17:30	0.13	0.13	417.6437008	mg/l	0.05
Upstream	6	LCC22-P-03-U	Inorganics	Total Suspended Solids	8/30/2022 17:30	8.4	8.4	417.6437008	mg/l	1.2
Upstream	6	LCC22-P-03-U	Metals	Copper	8/30/2022 17:30	0.81	0.81	417.6437008	ug/l	0.36
Upstream	6	LCC22-P-03-U	Metals	Lead	8/30/2022 17:30	0.2	0.2	417.6437008	ug/l	0.071
Upstream	6	LCC22-P-03-U	Metals	Zinc	8/30/2022 17:30	0	4	417.6437008	ug/l	4
Upstream	6	LCC22-P-03-U	Oil & Grease	SGT-HEM (TPH)	8/30/2022 17:30	0	1.7	417.6437008	mg/l	1.7
Upstream	6	LCC22-RE-03-U	BOD	Biochemical Oxygen Demand	8/30/2022 17:50	0	2	417.6469817	mg/l	2
Upstream	6	LCC22-RE-03-U	E. coli	E. coli	8/30/2022 17:50	2560	2560	417.6469817	MPN/100 ml	100
Upstream	6	LCC22-RE-03-U	Inorganics	Hardness as calcium carbonate	8/30/2022 17:50	190	190	417.6469817	mg/l	30
Upstream	6	LCC22-RE-03-U	Inorganics	Nitrate Nitrite as N	8/30/2022 17:50	0.86	0.86	417.6469817	mg/l	0.04
Upstream	6	LCC22-RE-03-U	Inorganics	Total Kjeldahl Nitrogen	8/30/2022 17:50	0.72	0.72	417.6469817	mg/l	0.5
Upstream	6	LCC22-RE-03-U	Inorganics	Total Phosphorus as P	8/30/2022 17:50	0.16	0.16	417.6469817	mg/l	0.05
Upstream	6	LCC22-RE-03-U	Inorganics	Total Suspended Solids	8/30/2022 17:50	6.3	6.3	417.6469817	mg/l	1
Upstream	6	LCC22-RE-03-U	Metals	Copper	8/30/2022 17:50	0.9	0.9	417.6469817	ug/l	0.36
Upstream	6	LCC22-RE-03-U	Metals	Lead	8/30/2022 17:50	0.19	0.19	417.6469817	ug/l	0.071
Upstream	6	LCC22-RE-03-U	Metals	Zinc	8/30/2022 17:50	0	4	417.6469817	ug/l	4
Upstream	6	LCC22-RE-03-U	Oil & Grease	SGT-HEM (TPH)	8/30/2022 17:50	0	1.6	417.6469817	mg/l	1.6
Downstream	12	LCC22-RI-03-D	BOD	Biochemical Oxygen Demand	8/30/2022 16:05	0	2	393.14875	mg/l	2
Downstream	12	LCC22-RI-03-D	E. coli	E. coli	8/30/2022 16:05	9600	9600	393.14875	MPN/100 ml	100
Downstream	12	LCC22-RI-03-D	Inorganics	Hardness as calcium carbonate	8/30/2022 16:05	170	170	393.14875	mg/l	30
Downstream	12	LCC22-RI-03-D	Inorganics	Nitrate Nitrite as N	8/30/2022 16:05	0.72	0.72	393.14875	mg/l	0.04
Downstream	12	LCC22-RI-03-D	Inorganics	Total Kjeldahl Nitrogen	8/30/2022 16:05	0	0.5	393.14875	mg/l	0.5
Downstream	12	LCC22-RI-03-D	Inorganics	Total Phosphorus as P	8/30/2022 16:05	0.085	0.085	393.14875	mg/l	0.05
Downstream	12	LCC22-RI-03-D	Inorganics	Total Suspended Solids	8/30/2022 16:05	3.4	3.4	393.14875	mg/l	1
Downstream	12	LCC22-RI-03-D	Metals	Copper	8/30/2022 16:05	0.61	0.61	393.14875	ug/l	0.36
Downstream	12	LCC22-RI-03-D	Metals	Lead	8/30/2022 16:05	0.081	0.081	393.14875	ug/l	0.071
Downstream	12	LCC22-RI-03-D	Metals	Zinc	8/30/2022 16:05	0	4	393.14875	ug/l	4
Downstream	12	LCC22-RI-03-D	Oil & Grease	SGT-HEM (TPH)	8/30/2022 16:05	1.9	1.9	393.14875	mg/l	1.5
Downstream	12	LCC22-P-03-D	BOD	Biochemical Oxygen Demand	8/30/2022 16:40	0	2	393.14875	mg/l	2
Downstream	12	LCC22-P-03-D	E. coli	E. coli	8/30/2022 16:40	10670	10670	393.14875	MPN/100 ml	100
Downstream	12	LCC22-P-03-D	Inorganics	Hardness as calcium carbonate	8/30/2022 16:40	160	160	393.14875	mg/l	30
Downstream	12	LCC22-P-03-D	Inorganics	Nitrate Nitrite as N	8/30/2022 16:40	0.59	0.59	393.14875	mg/l	0.04
Downstream	12	LCC22-P-03-D	Inorganics	Total Kjeldahl Nitrogen	8/30/2022 16:40	0.59	0.59	393.14875	mg/l	0.5
Downstream	12	LCC22-P-03-D	Inorganics	Total Phosphorus as P	8/30/2022 16:40	0.091	0.091	393.14875	mg/l	0.05

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Downstream	12	LCC22-P-03-D	Inorganics	Total Suspended Solids	8/30/2022 16:40	2.7	2.7	393.14875	mg/l	1
Downstream	12	LCC22-P-03-D	Metals	Copper	8/30/2022 16:40	0.63	0.63	393.14875	ug/l	0.36
Downstream	12	LCC22-P-03-D	Metals	Lead	8/30/2022 16:40	0	0.071	393.14875	ug/l	0.071
Downstream	12	LCC22-P-03-D	Metals	Zinc	8/30/2022 16:40	0	4	393.14875	ug/l	4
Downstream	12	LCC22-P-03-D	Oil & Grease	SGT-HEM (TPH)	8/30/2022 16:40	0	1.5	393.14875	mg/l	1.5
Downstream	12	LCC22-RE-03-D	BOD	Biochemical Oxygen Demand	8/30/2022 18:40	0	2	393.14875	mg/l	2
Downstream	12	LCC22-RE-03-D	E. coli	E. coli	8/30/2022 18:40	8160	8160	393.14875	MPN/100 ml	100
Downstream	12	LCC22-RE-03-D	Inorganics	Hardness as calcium carbonate	8/30/2022 18:40	160	160	393.14875	mg/l	30
Downstream	12	LCC22-RE-03-D	Inorganics	Nitrate Nitrite as N	8/30/2022 18:40	0.77	0.77	393.14875	mg/l	0.04
Downstream	12	LCC22-RE-03-D	Inorganics	Total Kjeldahl Nitrogen	8/30/2022 18:40	0.55	0.55	393.14875	mg/l	0.5
Downstream	12	LCC22-RE-03-D	Inorganics	Total Phosphorus as P	8/30/2022 18:40	0.082	0.082	393.14875	mg/l	0.05
Downstream	12	LCC22-RE-03-D	Inorganics	Total Suspended Solids	8/30/2022 18:40	1.8	1.8	393.14875	mg/l	1
Downstream	12	LCC22-RE-03-D	Metals	Copper	8/30/2022 18:40	1	1	393.14875	ug/l	0.36
Downstream	12	LCC22-RE-03-D	Metals	Lead	8/30/2022 18:40	0	0.071	393.14875	ug/l	0.071
Downstream	12	LCC22-RE-03-D	Metals	Zinc	8/30/2022 18:40	5.6	5.6	393.14875	ug/l	4
Downstream	12	LCC22-RE-03-D	Oil & Grease	SGT-HEM (TPH)	8/30/2022 18:40	2.4	2.4	393.14875	mg/l	1.5
Upstream	19	LCC22-RI-04-U	BOD	Biochemical Oxygen Demand	9/22/2022 9:24	2.8	2.8	417.6338583	mg/l	2
Upstream	19	LCC22-RI-04-U	E. coli	E. coli	9/22/2022 9:24	988	988	417.6338583	MPN/100 ml	10
Upstream	19	LCC22-RI-04-U	Inorganics	Hardness as calcium carbonate	9/22/2022 9:24	140	140	417.6338583	mg/l	15
Upstream	19	LCC22-RI-04-U	Inorganics	Nitrate Nitrite as N	9/22/2022 9:24	1	1	417.6338583	mg/l	0.04
Upstream	19	LCC22-RI-04-U	Inorganics	Total Kjeldahl Nitrogen	9/22/2022 9:24	0	0.5	417.6338583	mg/l	0.5
Upstream	19	LCC22-RI-04-U	Inorganics	Total Phosphorus as P	9/22/2022 9:24	0.12	0.12	417.6338583	mg/l	0.05
Upstream	19	LCC22-RI-04-U	Inorganics	Total Suspended Solids	9/22/2022 9:24	4.3	4.3	417.6338583	mg/l	1
Upstream	19	LCC22-RI-04-U	Metals	Copper	9/22/2022 9:24	0.87	0.87	417.6338583	ug/l	0.36
Upstream	19	LCC22-RI-04-U	Metals	Lead	9/22/2022 9:24	0.13	0.13	417.6338583	ug/l	0.071
Upstream	19	LCC22-RI-04-U	Metals	Zinc	9/22/2022 9:24	0	4	417.6338583	ug/l	4
Upstream	19	LCC22-RI-04-U	Oil & Grease	SGT-HEM (TPH)	9/22/2022 9:24	0	1.6	417.6338583	mg/l	1.6
Upstream	19	LCC22-P-04-U	BOD	Biochemical Oxygen Demand	9/22/2022 11:01	0	2	417.6469817	mg/l	2
Upstream	19	LCC22-P-04-U	E. coli	E. coli	9/22/2022 11:01	1850	1850	417.6469817	MPN/100 ml	10
Upstream	19	LCC22-P-04-U	Inorganics	Hardness as calcium carbonate	9/22/2022 11:01	160	160	417.6469817	mg/l	15
Upstream	19	LCC22-P-04-U	Inorganics	Nitrate Nitrite as N	9/22/2022 11:01	0.99	0.99	417.6469817	mg/l	0.04
Upstream	19	LCC22-P-04-U	Inorganics	Total Kjeldahl Nitrogen	9/22/2022 11:01	0.78	0.78	417.6469817	mg/l	0.5
Upstream	19	LCC22-P-04-U	Inorganics	Total Phosphorus as P	9/22/2022 11:01	0.17	0.17	417.6469817	mg/l	0.05
Upstream	19	LCC22-P-04-U	Inorganics	Total Suspended Solids	9/22/2022 11:01	5.4	5.4	417.6469817	mg/l	1
Upstream	19	LCC22-P-04-U	Metals	Copper	9/22/2022 11:01	0.92	0.92	417.6469817	ug/l	0.36
Upstream	19	LCC22-P-04-U	Metals	Lead	9/22/2022 11:01	0.22	0.22	417.6469817	ug/l	0.071
Upstream	19	LCC22-P-04-U	Metals	Zinc	9/22/2022 11:01	0	4	417.6469817	ug/l	4
Upstream	19	LCC22-P-04-U	Oil & Grease	SGT-HEM (TPH)	9/22/2022 11:01	0	1.7	417.6469817	mg/l	1.7
Upstream	19	LCC22-RE-04-U	BOD	Biochemical Oxygen Demand	9/22/2022 12:33	0	2	417.660105	mg/l	2
Upstream	19	LCC22-RE-04-U	E. coli	E. coli	9/22/2022 12:33	2310	2310	417.660105	MPN/100 ml	10
Upstream	19	LCC22-RE-04-U	Inorganics	Hardness as calcium carbonate	9/22/2022 12:33	160	160	417.660105	mg/l	15
Upstream	19	LCC22-RE-04-U	Inorganics	Nitrate Nitrite as N	9/22/2022 12:33	1.1	1.1	417.660105	mg/l	0.04
Upstream	19	LCC22-RE-04-U	Inorganics	Total Kjeldahl Nitrogen	9/22/2022 12:33	0.71	0.71	417.660105	mg/l	0.5
Upstream	19	LCC22-RE-04-U	Inorganics	Total Phosphorus as P	9/22/2022 12:33	0.13	0.13	417.660105	mg/l	0.05
Upstream	19	LCC22-RE-04-U	Inorganics	Total Suspended Solids	9/22/2022 12:33	6.4	6.4	417.660105	mg/l	1.2
Upstream	19	LCC22-RE-04-U	Metals	Copper	9/22/2022 12:33	0.82	0.82	417.660105	ug/l	0.36
Upstream	19	LCC22-RE-04-U	Metals	Lead	9/22/2022 12:33	0	0.071	417.660105	ug/l	0.071
Upstream	19	LCC22-RE-04-U	Metals	Zinc	9/22/2022 12:33	0	4	417.660105	ug/l	4
Upstream	19	LCC22-RE-04-U	Oil & Grease	SGT-HEM (TPH)	9/22/2022 12:33	0	1.6	417.660105	mg/l	1.6
Downstream	20	LCC22-RI-04-D	BOD	Biochemical Oxygen Demand	9/22/2022 10:29	0	2	394.345536	mg/l	2
Downstream	20	LCC22-RI-04-D	E. coli	E. coli	9/22/2022 10:29	4106	4106	394.345536	MPN/100 ml	10

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Downstream	20	LCC22-RI-04-D	Inorganics	Hardness as calcium carbonate	9/22/2022 10:29	150	150	394.345536	mg/l	15
Downstream	20	LCC22-RI-04-D	Inorganics	Nitrate Nitrite as N	9/22/2022 10:29	0.93	0.93	394.345536	mg/l	0.04
Downstream	20	LCC22-RI-04-D	Inorganics	Total Kjeldahl Nitrogen	9/22/2022 10:29	0	0.5	394.345536	mg/l	0.5
Downstream	20	LCC22-RI-04-D	Inorganics	Total Phosphorus as P	9/22/2022 10:29	0.15	0.15	394.345536	mg/l	0.05
Downstream	20	LCC22-RI-04-D	Inorganics	Total Suspended Solids	9/22/2022 10:29	6.2	6.2	394.345536	mg/l	1.2
Downstream	20	LCC22-RI-04-D	Metals	Copper	9/22/2022 10:29	1.6	1.6	394.345536	ug/l	0.36
Downstream	20	LCC22-RI-04-D	Metals	Lead	9/22/2022 10:29	0.78	0.78	394.345536	ug/l	0.071
Downstream	20	LCC22-RI-04-D	Metals	Zinc	9/22/2022 10:29	0	4	394.345536	ug/l	4
Downstream	20	LCC22-RI-04-D	Oil & Grease	SGT-HEM (TPH)	9/22/2022 10:29	0	1.6	394.345536	mg/l	1.6
Downstream	20	LCC22-P-04-D	BOD	Biochemical Oxygen Demand	9/22/2022 11:25	0	2	393.14875	mg/l	2
Downstream	20	LCC22-P-04-D	E. coli	E. coli	9/22/2022 11:25	3076	3076	393.14875	MPN/100 ml	10
Downstream	20	LCC22-P-04-D	Inorganics	Hardness as calcium carbonate	9/22/2022 11:25	140	140	393.14875	mg/l	15
Downstream	20	LCC22-P-04-D	Inorganics	Nitrate Nitrite as N	9/22/2022 11:25	0.72	0.72	393.14875	mg/l	0.04
Downstream	20	LCC22-P-04-D	Inorganics	Total Kjeldahl Nitrogen	9/22/2022 11:25	0	0.5	393.14875	mg/l	0.5
Downstream	20	LCC22-P-04-D	Inorganics	Total Phosphorus as P	9/22/2022 11:25	0.076	0.076	393.14875	mg/l	0.05
Downstream	20	LCC22-P-04-D	Inorganics	Total Suspended Solids	9/22/2022 11:25	2.1	2.1	393.14875	mg/l	1.2
Downstream	20	LCC22-P-04-D	Metals	Copper	9/22/2022 11:25	0.76	0.76	393.14875	ug/l	0.36
Downstream	20	LCC22-P-04-D	Metals	Lead	9/22/2022 11:25	0	0.071	393.14875	ug/l	0.071
Downstream	20	LCC22-P-04-D	Metals	Zinc	9/22/2022 11:25	0	4	393.14875	ug/l	4
Downstream	20	LCC22-P-04-D	Oil & Grease	SGT-HEM (TPH)	9/22/2022 11:25	0	1.6	393.14875	mg/l	1.6
Downstream	20	LCC22-RE-04-D	BOD	Biochemical Oxygen Demand	9/22/2022 12:14	0	2	394.3851267	mg/l	2
Downstream	20	LCC22-RE-04-D	E. coli	E. coli	9/22/2022 12:14	2909	2909	394.3851267	MPN/100 ml	10
Downstream	20	LCC22-RE-04-D	Inorganics	Hardness as calcium carbonate	9/22/2022 12:14	190	190	394.3851267	mg/l	15
Downstream	20	LCC22-RE-04-D	Inorganics	Nitrate Nitrite as N	9/22/2022 12:14	0.72	0.72	394.3851267	mg/l	0.04
Downstream	20	LCC22-RE-04-D	Inorganics	Total Kjeldahl Nitrogen	9/22/2022 12:14	0.52	0.52	394.3851267	mg/l	0.5
Downstream	20	LCC22-RE-04-D	Inorganics	Total Phosphorus as P	9/22/2022 12:14	0.077	0.077	394.3851267	mg/l	0.05
Downstream	20	LCC22-RE-04-D	Inorganics	Total Suspended Solids	9/22/2022 12:14	3.6	3.6	394.3851267	mg/l	1.1
Downstream	20	LCC22-RE-04-D	Metals	Copper	9/22/2022 12:14	0.6	0.6	394.3851267	ug/l	0.36
Downstream	20	LCC22-RE-04-D	Metals	Lead	9/22/2022 12:14	0	0.071	394.3851267	ug/l	0.071
Downstream	20	LCC22-RE-04-D	Metals	Zinc	9/22/2022 12:14	0	4	394.3851267	ug/l	4
Downstream	20	LCC22-RE-04-D	Oil & Grease	SGT-HEM (TPH)	9/22/2022 12:14	0	1.6	394.3851267	mg/l	1.6
Upstream	21	LCC22-RI-05-U	BOD	Biochemical Oxygen Demand	10/1/2022 8:15	23	23	418.1653544	mg/l	2
Upstream	21	LCC22-RI-05-U	E. coli	E. coli	10/1/2022 8:15	111990	111990	418.1653544	MPN/100 ml	100
Upstream	21	LCC22-RI-05-U	Inorganics	Hardness as calcium carbonate	10/1/2022 8:15	120	120	418.1653544	mg/l	15
Upstream	21	LCC22-RI-05-U	Inorganics	Nitrate Nitrite as N	10/1/2022 8:15	1.6	1.6	418.1653544	mg/l	0.04
Upstream	21	LCC22-RI-05-U	Inorganics	Total Kjeldahl Nitrogen	10/1/2022 8:15	2.7	2.7	418.1653544	mg/l	0.5
Upstream	21	LCC22-RI-05-U	Inorganics	Total Phosphorus as P	10/1/2022 8:15	0.76	0.76	418.1653544	mg/l	0.05
Upstream	21	LCC22-RI-05-U	Inorganics	Total Suspended Solids	10/1/2022 8:15	15	15	418.1653544	mg/l	1
Upstream	21	LCC22-RI-05-U	Metals	Copper	10/1/2022 8:15	3.5	3.5	418.1653544	ug/l	0.36
Upstream	21	LCC22-RI-05-U	Metals	Lead	10/1/2022 8:15	0.46	0.46	418.1653544	ug/l	0.071
Upstream	21	LCC22-RI-05-U	Metals	Zinc	10/1/2022 8:15	9.9	9.9	418.1653544	ug/l	4
Upstream	21	LCC22-RI-05-U	Oil & Grease	SGT-HEM (TPH)	10/1/2022 8:15	0	1.6	418.1653544	mg/l	1.6
Upstream	21	LCC22-P-05-U	BOD	Biochemical Oxygen Demand	10/2/2022 11:15	9.2	9.2	418.8937009	mg/l	2
Upstream	21	LCC22-P-05-U	E. coli	E. coli	10/2/2022 11:15	141360	141360	418.8937009	MPN/100 ml	100
Upstream	21	LCC22-P-05-U	Inorganics	Hardness as calcium carbonate	10/2/2022 11:15	89	89	418.8937009	mg/l	30
Upstream	21	LCC22-P-05-U	Inorganics	Nitrate Nitrite as N	10/2/2022 11:15	1.9	1.9	418.8937009	mg/l	0.04
Upstream	21	LCC22-P-05-U	Inorganics	Total Kjeldahl Nitrogen	10/2/2022 11:15	2.9	2.9	418.8937009	mg/l	0.5
Upstream	21	LCC22-P-05-U	Inorganics	Total Phosphorus as P	10/2/2022 11:15	0.83	0.83	418.8937009	mg/l	0.05
Upstream	21	LCC22-P-05-U	Inorganics	Total Suspended Solids	10/2/2022 11:15	180	180	418.8937009	mg/l	6.3
Upstream	21	LCC22-P-05-U	Metals	Copper	10/2/2022 11:15	7.2	7.2	418.8937009	ug/l	0.36
Upstream	21	LCC22-P-05-U	Metals	Lead	10/2/2022 11:15	1.5	1.5	418.8937009	ug/l	0.071

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Upstream	21	LCC22-P-05-U	Metals	Zinc	10/2/2022 11:15	12	12	418.8937009	ug/l	4
Upstream	21	LCC22-P-05-U	Oil & Grease	SGT-HEM (TPH)	10/2/2022 11:15	0	1.6	418.8937009	mg/l	1.6
Upstream	21	LCC22-RE-05-U	BOD	Biochemical Oxygen Demand	10/3/2022 13:05	4.5	4.5	418.0866142	mg/l	2
Upstream	21	LCC22-RE-05-U	E. coli	E. coli	10/3/2022 13:05	10170	10170	418.0866142	MPN/100 ml	100
Upstream	21	LCC22-RE-05-U	Inorganics	Hardness as calcium carbonate	10/3/2022 13:05	110	110	418.0866142	mg/l	30
Upstream	21	LCC22-RE-05-U	Inorganics	Nitrate Nitrite as N	10/3/2022 13:05	2.3	2.3	418.0866142	mg/l	0.04
Upstream	21	LCC22-RE-05-U	Inorganics	Total Kjeldahl Nitrogen	10/3/2022 13:05	1.2	1.2	418.0866142	mg/l	0.5
Upstream	21	LCC22-RE-05-U	Inorganics	Total Phosphorus as P	10/3/2022 13:05	0.25	0.25	418.0866142	mg/l	0.05
Upstream	21	LCC22-RE-05-U	Inorganics	Total Suspended Solids	10/3/2022 13:05	8.1	8.1	418.0866142	mg/l	1
Upstream	21	LCC22-RE-05-U	Metals	Copper	10/3/2022 13:05	2.8	2.8	418.0866142	ug/l	0.36
Upstream	21	LCC22-RE-05-U	Metals	Lead	10/3/2022 13:05	0.19	0.19	418.0866142	ug/l	0.071
Upstream	21	LCC22-RE-05-U	Metals	Zinc	10/3/2022 13:05	0	4	418.0866142	ug/l	4
Upstream	21	LCC22-RE-05-U	Oil & Grease	SGT-HEM (TPH)	10/3/2022 13:05	0	1.6	418.0866142	mg/l	1.6
Downstream	22	LCC22-RI-05-D	BOD	Biochemical Oxygen Demand	10/1/2022 9:05	14	14	393.14875	mg/l	2
Downstream	22	LCC22-RI-05-D	E. coli	E. coli	10/1/2022 9:05	241960	241960	393.14875	MPN/100 ml	100
Downstream	22	LCC22-RI-05-D	Inorganics	Hardness as calcium carbonate	10/1/2022 9:05	150	150	393.14875	mg/l	15
Downstream	22	LCC22-RI-05-D	Inorganics	Nitrate Nitrite as N	10/1/2022 9:05	1.3	1.3	393.14875	mg/l	0.04
Downstream	22	LCC22-RI-05-D	Inorganics	Total Kjeldahl Nitrogen	10/1/2022 9:05	2	2	393.14875	mg/l	0.5
Downstream	22	LCC22-RI-05-D	Inorganics	Total Phosphorus as P	10/1/2022 9:05	0.42	0.42	393.14875	mg/l	0.05
Downstream	22	LCC22-RI-05-D	Inorganics	Total Suspended Solids	10/1/2022 9:05	15	15	393.14875	mg/l	1
Downstream	22	LCC22-RI-05-D	Metals	Copper	10/1/2022 9:05	2.8	2.8	393.14875	ug/l	0.36
Downstream	22	LCC22-RI-05-D	Metals	Lead	10/1/2022 9:05	0.23	0.23	393.14875	ug/l	0.071
Downstream	22	LCC22-RI-05-D	Metals	Zinc	10/1/2022 9:05	0	4	393.14875	ug/l	4
Downstream	22	LCC22-RI-05-D	Oil & Grease	SGT-HEM (TPH)	10/1/2022 9:05	0	1.6	393.14875	mg/l	1.6
Downstream	22	LCC22-P-05-D	BOD	Biochemical Oxygen Demand	10/2/2022 12:00	3.7	3.7	393.14875	mg/l	2
Downstream	22	LCC22-P-05-D	E. coli	E. coli	10/2/2022 12:00	51720	51720	393.14875	MPN/100 ml	100
Downstream	22	LCC22-P-05-D	Inorganics	Hardness as calcium carbonate	10/2/2022 12:00	91	91	393.14875	mg/l	30
Downstream	22	LCC22-P-05-D	Inorganics	Nitrate Nitrite as N	10/2/2022 12:00	1.3	1.3	393.14875	mg/l	0.04
Downstream	22	LCC22-P-05-D	Inorganics	Total Kjeldahl Nitrogen	10/2/2022 12:00	1.7	1.7	393.14875	mg/l	0.5
Downstream	22	LCC22-P-05-D	Inorganics	Total Phosphorus as P	10/2/2022 12:00	0.44	0.44	393.14875	mg/l	0.05
Downstream	22	LCC22-P-05-D	Inorganics	Total Suspended Solids	10/2/2022 12:00	20	20	393.14875	mg/l	1
Downstream	22	LCC22-P-05-D	Metals	Copper	10/2/2022 12:00	4	4	393.14875	ug/l	0.36
Downstream	22	LCC22-P-05-D	Metals	Lead	10/2/2022 12:00	0.42	0.42	393.14875	ug/l	0.071
Downstream	22	LCC22-P-05-D	Metals	Zinc	10/2/2022 12:00	0	4	393.14875	ug/l	4
Downstream	22	LCC22-P-05-D	Oil & Grease	SGT-HEM (TPH)	10/2/2022 12:00	1.7	1.7	393.14875	mg/l	1.6
Downstream	22	LCC22-RE-05-D	BOD	Biochemical Oxygen Demand	10/3/2022 13:40	3.2	3.2	393.14875	mg/l	2
Downstream	22	LCC22-RE-05-D	E. coli	E. coli	10/3/2022 13:40	4110	4110	393.14875	MPN/100 ml	100
Downstream	22	LCC22-RE-05-D	Inorganics	Hardness as calcium carbonate	10/3/2022 13:40	100	100	393.14875	mg/l	15
Downstream	22	LCC22-RE-05-D	Inorganics	Nitrate Nitrite as N	10/3/2022 13:40	1.9	1.9	393.14875	mg/l	0.04
Downstream	22	LCC22-RE-05-D	Inorganics	Total Kjeldahl Nitrogen	10/3/2022 13:40	1.4	1.4	393.14875	mg/l	0.5
Downstream	22	LCC22-RE-05-D	Inorganics	Total Phosphorus as P	10/3/2022 13:40	0.21	0.21	393.14875	mg/l	0.05
Downstream	22	LCC22-RE-05-D	Inorganics	Total Suspended Solids	10/3/2022 13:40	4.2	4.2	393.14875	mg/l	1
Downstream	22	LCC22-RE-05-D	Metals	Copper	10/3/2022 13:40	3	3	393.14875	ug/l	0.36
Downstream	22	LCC22-RE-05-D	Metals	Lead	10/3/2022 13:40	0.26	0.26	393.14875	ug/l	0.071
Downstream	22	LCC22-RE-05-D	Metals	Zinc	10/3/2022 13:40	0	4	393.14875	ug/l	4
Downstream	22	LCC22-RE-05-D	Oil & Grease	SGT-HEM (TPH)	10/3/2022 13:40	0	1.6	393.14875	mg/l	1.6
Upstream	23	LCC22-RI-06-U	BOD	Biochemical Oxygen Demand	10/13/2022 15:25	3.3	3.3	417.7290027	mg/l	2.5
Upstream	23	LCC22-RI-06-U	E. coli	E. coli	10/13/2022 15:25	19863	19863	417.7290027	MPN/100 ml	10
Upstream	23	LCC22-RI-06-U	Inorganics	Hardness as calcium carbonate	10/13/2022 15:25	130	130	417.7290027	mg/l	15
Upstream	23	LCC22-RI-06-U	Inorganics	Nitrate Nitrite as N	10/13/2022 15:25	2.6	2.6	417.7290027	mg/l	0.04
Upstream	23	LCC22-RI-06-U	Inorganics	Total Kjeldahl Nitrogen	10/13/2022 15:25	1.2	1.2	417.7290027	mg/l	0.5

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Upstream	23	LCC22-RI-06-U	Inorganics	Total Phosphorus as P	10/13/2022 15:25	0.13	0.13	417.7290027	mg/l	0.05
Upstream	23	LCC22-RI-06-U	Inorganics	Total Suspended Solids	10/13/2022 15:25	1.9	1.9	417.7290027	mg/l	1
Upstream	23	LCC22-RI-06-U	Metals	Copper	10/13/2022 15:25	1.1	1.1	417.7290027	ug/l	0.36
Upstream	23	LCC22-RI-06-U	Metals	Lead	10/13/2022 15:25	0.14	0.14	417.7290027	ug/l	0.071
Upstream	23	LCC22-RI-06-U	Metals	Zinc	10/13/2022 15:25	0	4	417.7290027	ug/l	4
Upstream	23	LCC22-RI-06-U	Oil & Grease	SGT-HEM (TPH)	10/13/2022 15:25	0	1.6	417.7290027	mg/l	1.6
Upstream	23	LCC22-P-06-U	BOD	Biochemical Oxygen Demand	10/13/2022 17:14	0	2.5	417.722441	mg/l	2.5
Upstream	23	LCC22-P-06-U	E. coli	E. coli	10/13/2022 17:14	24196	24196	417.722441	MPN/100 ml	10
Upstream	23	LCC22-P-06-U	Inorganics	Hardness as calcium carbonate	10/13/2022 17:14	130	130	417.722441	mg/l	15
Upstream	23	LCC22-P-06-U	Inorganics	Nitrate Nitrite as N	10/13/2022 17:14	2.3	2.3	417.722441	mg/l	0.04
Upstream	23	LCC22-P-06-U	Inorganics	Total Kjeldahl Nitrogen	10/13/2022 17:14	0.85	0.85	417.722441	mg/l	0.5
Upstream	23	LCC22-P-06-U	Inorganics	Total Phosphorus as P	10/13/2022 17:14	0.11	0.11	417.722441	mg/l	0.05
Upstream	23	LCC22-P-06-U	Inorganics	Total Suspended Solids	10/13/2022 17:14	1.1	1.1	417.722441	mg/l	1
Upstream	23	LCC22-P-06-U	Metals	Copper	10/13/2022 17:14	1	1	417.722441	ug/l	0.36
Upstream	23	LCC22-P-06-U	Metals	Lead	10/13/2022 17:14	0.12	0.12	417.722441	ug/l	0.071
Upstream	23	LCC22-P-06-U	Metals	Zinc	10/13/2022 17:14	4	4	417.722441	ug/l	4
Upstream	23	LCC22-P-06-U	Oil & Grease	SGT-HEM (TPH)	10/13/2022 17:14	0	1.7	417.722441	mg/l	1.7
Upstream	23	LCC22-RE-06-U	BOD	Biochemical Oxygen Demand	10/14/2022 8:35	3.7	3.7	417.7257218	mg/l	2.5
Upstream	23	LCC22-RE-06-U	E. coli	E. coli	10/14/2022 8:35	11199	11199	417.7257218	MPN/100 ml	10
Upstream	23	LCC22-RE-06-U	Inorganics	Hardness as calcium carbonate	10/14/2022 8:35	140	140	417.7257218	mg/l	15
Upstream	23	LCC22-RE-06-U	Inorganics	Nitrate Nitrite as N	10/14/2022 8:35	1.8	1.8	417.7257218	mg/l	0.04
Upstream	23	LCC22-RE-06-U	Inorganics	Total Kjeldahl Nitrogen	10/14/2022 8:35	1.6	1.6	417.7257218	mg/l	0.5
Upstream	23	LCC22-RE-06-U	Inorganics	Total Phosphorus as P	10/14/2022 8:35	0.22	0.22	417.7257218	mg/l	0.05
Upstream	23	LCC22-RE-06-U	Inorganics	Total Suspended Solids	10/14/2022 8:35	13	13	417.7257218	mg/l	1
Upstream	23	LCC22-RE-06-U	Metals	Copper	10/14/2022 8:35	1.1	1.1	417.7257218	ug/l	0.36
Upstream	23	LCC22-RE-06-U	Metals	Lead	10/14/2022 8:35	0.16	0.16	417.7257218	ug/l	0.071
Upstream	23	LCC22-RE-06-U	Metals	Zinc	10/14/2022 8:35	0	4	417.7257218	ug/l	4
Upstream	23	LCC22-RE-06-U	Oil & Grease	SGT-HEM (TPH)	10/14/2022 8:35	1.6	1.6	417.7257218	mg/l	1.6
Downstream	24	LCC22-RI-06-D	BOD	Biochemical Oxygen Demand	10/13/2022 16:00	3.4	3.4	394.4570537	mg/l	2.5
Downstream	24	LCC22-RI-06-D	E. coli	E. coli	10/13/2022 16:00	10462	10462	394.4570537	MPN/100 ml	10
Downstream	24	LCC22-RI-06-D	Inorganics	Hardness as calcium carbonate	10/13/2022 16:00	150	150	394.4570537	mg/l	15
Downstream	24	LCC22-RI-06-D	Inorganics	Nitrate Nitrite as N	10/13/2022 16:00	2.1	2.1	394.4570537	mg/l	0.04
Downstream	24	LCC22-RI-06-D	Inorganics	Total Kjeldahl Nitrogen	10/13/2022 16:00	0.86	0.86	394.4570537	mg/l	0.5
Downstream	24	LCC22-RI-06-D	Inorganics	Total Phosphorus as P	10/13/2022 16:00	0.066	0.066	394.4570537	mg/l	0.05
Downstream	24	LCC22-RI-06-D	Inorganics	Total Suspended Solids	10/13/2022 16:00	7.7	7.7	394.4570537	mg/l	1
Downstream	24	LCC22-RI-06-D	Metals	Copper	10/13/2022 16:00	1.3	1.3	394.4570537	ug/l	0.36
Downstream	24	LCC22-RI-06-D	Metals	Lead	10/13/2022 16:00	0.11	0.11	394.4570537	ug/l	0.071
Downstream	24	LCC22-RI-06-D	Metals	Zinc	10/13/2022 16:00	0	4	394.4570537	ug/l	4
Downstream	24	LCC22-RI-06-D	Oil & Grease	SGT-HEM (TPH)	10/13/2022 16:00	0	1.6	394.4570537	mg/l	1.6
Downstream	24	LCC22-P-06-D	BOD	Biochemical Oxygen Demand	10/13/2022 17:51	0	2.5	394.4743312	mg/l	2.5
Downstream	24	LCC22-P-06-D	E. coli	E. coli	10/13/2022 17:51	9804	9804	394.4743312	MPN/100 ml	10
Downstream	24	LCC22-P-06-D	Inorganics	Hardness as calcium carbonate	10/13/2022 17:51	150	150	394.4743312	mg/l	15
Downstream	24	LCC22-P-06-D	Inorganics	Nitrate Nitrite as N	10/13/2022 17:51	1.9	1.9	394.4743312	mg/l	0.04
Downstream	24	LCC22-P-06-D	Inorganics	Total Kjeldahl Nitrogen	10/13/2022 17:51	0.73	0.73	394.4743312	mg/l	0.5
Downstream	24	LCC22-P-06-D	Inorganics	Total Phosphorus as P	10/13/2022 17:51	0.061	0.061	394.4743312	mg/l	0.05
Downstream	24	LCC22-P-06-D	Inorganics	Total Suspended Solids	10/13/2022 17:51	6	6	394.4743312	mg/l	1
Downstream	24	LCC22-P-06-D	Metals	Copper	10/13/2022 17:51	1.6	1.6	394.4743312	ug/l	0.36
Downstream	24	LCC22-P-06-D	Metals	Lead	10/13/2022 17:51	0.16	0.16	394.4743312	ug/l	0.071
Downstream	24	LCC22-P-06-D	Metals	Zinc	10/13/2022 17:51	0	4	394.4743312	ug/l	4
Downstream	24	LCC22-P-06-D	Oil & Grease	SGT-HEM (TPH)	10/13/2022 17:51	0	1.6	394.4743312	mg/l	1.6
Downstream	24	LCC22-RE-06-D	BOD	Biochemical Oxygen Demand	10/14/2022 9:15	6.5	6.5	394.473412	mg/l	2.5

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Downstream	24	LCC22-RE-06-D	E. coli	E. coli	10/14/2022 9:15	57940	57940	394.473412	MPN/100 ml	100
Downstream	24	LCC22-RE-06-D	Inorganics	Hardness as calcium carbonate	10/14/2022 9:15	160	160	394.473412	mg/l	15
Downstream	24	LCC22-RE-06-D	Inorganics	Nitrate Nitrite as N	10/14/2022 9:15	1.1	1.1	394.473412	mg/l	0.04
Downstream	24	LCC22-RE-06-D	Inorganics	Total Kjeldahl Nitrogen	10/14/2022 9:15	1.4	1.4	394.473412	mg/l	0.5
Downstream	24	LCC22-RE-06-D	Inorganics	Total Phosphorus as P	10/14/2022 9:15	0.13	0.13	394.473412	mg/l	0.05
Downstream	24	LCC22-RE-06-D	Inorganics	Total Suspended Solids	10/14/2022 9:15	2	2	394.473412	mg/l	1
Downstream	24	LCC22-RE-06-D	Metals	Copper	10/14/2022 9:15	1.8	1.8	394.473412	ug/l	0.36
Downstream	24	LCC22-RE-06-D	Metals	Lead	10/14/2022 9:15	0.1	0.1	394.473412	ug/l	0.071
Downstream	24	LCC22-RE-06-D	Metals	Zinc	10/14/2022 9:15	0	4	394.473412	ug/l	4
Downstream	24	LCC22-RE-06-D	Oil & Grease	SGT-HEM (TPH)	10/14/2022 9:15	0	1.7	394.473412	mg/l	1.7
Upstream	25	LCC22-RI-07-U	BOD	Biochemical Oxygen Demand	11/11/2022 8:45	56	56	417.6797901	mg/l	2
Upstream	25	LCC22-RI-07-U	E. coli	E. coli	11/11/2022 8:45	5172	5172	417.6797901	MPN/100 ml	10
Upstream	25	LCC22-RI-07-U	Inorganics	Hardness as calcium carbonate	11/11/2022 8:45	140	140	417.6797901	mg/l	15
Upstream	25	LCC22-RI-07-U	Inorganics	Nitrate Nitrite as N	11/11/2022 8:45	1.2	1.2	417.6797901	mg/l	0.04
Upstream	25	LCC22-RI-07-U	Inorganics	Total Kjeldahl Nitrogen	11/11/2022 8:45	2	2	417.6797901	mg/l	0.5
Upstream	25	LCC22-RI-07-U	Inorganics	Total Phosphorus as P	11/11/2022 8:45	0.73	0.73	417.6797901	mg/l	0.05
Upstream	25	LCC22-RI-07-U	Inorganics	Total Suspended Solids	11/11/2022 8:45	33	33	417.6797901	mg/l	2
Upstream	25	LCC22-RI-07-U	Metals	Copper	11/11/2022 8:45	2.5	2.5	417.6797901	ug/l	0.36
Upstream	25	LCC22-RI-07-U	Metals	Lead	11/11/2022 8:45	0.98	0.98	417.6797901	ug/l	0.071
Upstream	25	LCC22-RI-07-U	Metals	Zinc	11/11/2022 8:45	9.6	9.6	417.6797901	ug/l	4
Upstream	25	LCC22-RI-07-U	Oil & Grease	SGT-HEM (TPH)	11/11/2022 8:45	0	1.8	417.6797901	mg/l	1.8
Upstream	25	LCC22-P-07-U	BOD	Biochemical Oxygen Demand	11/11/2022 14:00	23	23	418.7821523	mg/l	2
Upstream	25	LCC22-P-07-U	E. coli	E. coli	11/11/2022 14:00	241960	241960	418.7821523	MPN/100 ml	100
Upstream	25	LCC22-P-07-U	Inorganics	Hardness as calcium carbonate	11/11/2022 14:00	100	100	418.7821523	mg/l	6
Upstream	25	LCC22-P-07-U	Inorganics	Nitrate Nitrite as N	11/11/2022 14:00	2.4	2.4	418.7821523	mg/l	0.04
Upstream	25	LCC22-P-07-U	Inorganics	Total Kjeldahl Nitrogen	11/11/2022 14:00	2	2	418.7821523	mg/l	0.5
Upstream	25	LCC22-P-07-U	Inorganics	Total Phosphorus as P	11/11/2022 14:00	0.95	0.95	418.7821523	mg/l	0.05
Upstream	25	LCC22-P-07-U	Inorganics	Total Suspended Solids	11/11/2022 14:00	91	91	418.7821523	mg/l	3.3
Upstream	25	LCC22-P-07-U	Metals	Copper	11/11/2022 14:00	9.7	9.7	418.7821523	ug/l	0.36
Upstream	25	LCC22-P-07-U	Metals	Lead	11/11/2022 14:00	0.72	0.72	418.7821523	ug/l	0.071
Upstream	25	LCC22-P-07-U	Metals	Zinc	11/11/2022 14:00	6.7	6.7	418.7821523	ug/l	4
Upstream	25	LCC22-P-07-U	Oil & Grease	SGT-HEM (TPH)	11/11/2022 14:00	2.2	2.2	418.7821523	mg/l	1.6
Upstream	25	LCC22-RE-07-U	BOD	Biochemical Oxygen Demand	11/12/2022 8:20	19	19	418.4311024	mg/l	2
Upstream	25	LCC22-RE-07-U	E. coli	E. coli	11/12/2022 8:20	54750	54750	418.4311024	MPN/100 ml	100
Upstream	25	LCC22-RE-07-U	Inorganics	Hardness as calcium carbonate	11/12/2022 8:20	120	120	418.4311024	mg/l	30
Upstream	25	LCC22-RE-07-U	Inorganics	Nitrate Nitrite as N	11/12/2022 8:20	1.8	1.8	418.4311024	mg/l	0.04
Upstream	25	LCC22-RE-07-U	Inorganics	Total Kjeldahl Nitrogen	11/12/2022 8:20	2	2	418.4311024	mg/l	0.5
Upstream	25	LCC22-RE-07-U	Inorganics	Total Phosphorus as P	11/12/2022 8:20	0.69	0.69	418.4311024	mg/l	0.05
Upstream	25	LCC22-RE-07-U	Inorganics	Total Suspended Solids	11/12/2022 8:20	31	31	418.4311024	mg/l	1.8
Upstream	25	LCC22-RE-07-U	Metals	Copper	11/12/2022 8:20	8.9	8.9	418.4311024	ug/l	0.36
Upstream	25	LCC22-RE-07-U	Metals	Lead	11/12/2022 8:20	0.65	0.65	418.4311024	ug/l	0.071
Upstream	25	LCC22-RE-07-U	Metals	Zinc	11/12/2022 8:20	5.8	5.8	418.4311024	ug/l	4
Upstream	25	LCC22-RE-07-U	Oil & Grease	SGT-HEM (TPH)	11/12/2022 8:20	0	1.7	418.4311024	mg/l	1.7
Downstream	26	LCC22-RI-07-D	BOD	Biochemical Oxygen Demand	11/11/2022 9:24	6.9	6.9	394.6612223	mg/l	2
Downstream	26	LCC22-RI-07-D	E. coli	E. coli	11/11/2022 9:24	3076	3076	394.6612223	MPN/100 ml	10
Downstream	26	LCC22-RI-07-D	Inorganics	Hardness as calcium carbonate	11/11/2022 9:24	190	190	394.6612223	mg/l	15
Downstream	26	LCC22-RI-07-D	Inorganics	Nitrate Nitrite as N	11/11/2022 9:24	0.3	0.3	394.6612223	mg/l	0.04
Downstream	26	LCC22-RI-07-D	Inorganics	Total Kjeldahl Nitrogen	11/11/2022 9:24	0	0.5	394.6612223	mg/l	0.5
Downstream	26	LCC22-RI-07-D	Inorganics	Total Phosphorus as P	11/11/2022 9:24	0.096	0.096	394.6612223	mg/l	0.05
Downstream	26	LCC22-RI-07-D	Inorganics	Total Suspended Solids	11/11/2022 9:24	9.8	9.8	394.6612223	mg/l	1.1
Downstream	26	LCC22-RI-07-D	Metals	Copper	11/11/2022 9:24	1.1	1.1	394.6612223	ug/l	0.36

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Downstream	26	LCC22-RI-07-D	Metals	Lead	11/11/2022 9:24	0.21	0.21	394.6612223	ug/l	0.071
Downstream	26	LCC22-RI-07-D	Metals	Zinc	11/11/2022 9:24	0	4	394.6612223	ug/l	4
Downstream	26	LCC22-RI-07-D	Oil & Grease	SGT-HEM (TPH)	11/11/2022 9:24	3.7	3.7	394.6612223	mg/l	1.7
Downstream	26	LCC22-P-07-D	BOD	Biochemical Oxygen Demand	11/11/2022 14:45	23	23	395.0760401	mg/l	2
Downstream	26	LCC22-P-07-D	E. coli	E. coli	11/11/2022 14:45	241960	241960	395.0760401	MPN/100 ml	100
Downstream	26	LCC22-P-07-D	Inorganics	Hardness as calcium carbonate	11/11/2022 14:45	120	120	395.0760401	mg/l	30
Downstream	26	LCC22-P-07-D	Inorganics	Nitrate Nitrite as N	11/11/2022 14:45	2	2	395.0760401	mg/l	0.04
Downstream	26	LCC22-P-07-D	Inorganics	Total Kjeldahl Nitrogen	11/11/2022 14:45	2.4	2.4	395.0760401	mg/l	0.5
Downstream	26	LCC22-P-07-D	Inorganics	Total Phosphorus as P	11/11/2022 14:45	1.1	1.1	395.0760401	mg/l	0.05
Downstream	26	LCC22-P-07-D	Inorganics	Total Suspended Solids	11/11/2022 14:45	68	68	395.0760401	mg/l	2.9
Downstream	26	LCC22-P-07-D	Metals	Copper	11/11/2022 14:45	6.4	6.4	395.0760401	ug/l	0.36
Downstream	26	LCC22-P-07-D	Metals	Lead	11/11/2022 14:45	1.5	1.5	395.0760401	ug/l	0.071
Downstream	26	LCC22-P-07-D	Metals	Zinc	11/11/2022 14:45	13	13	395.0760401	ug/l	4
Downstream	26	LCC22-P-07-D	Oil & Grease	SGT-HEM (TPH)	11/11/2022 14:45	3.1	3.1	395.0760401	mg/l	1.6
Downstream	26	LCC22-RE-07-D	BOD	Biochemical Oxygen Demand	11/12/2022 9:00	7.6	7.6	394.8895386	mg/l	2
Downstream	26	LCC22-RE-07-D	E. coli	E. coli	11/12/2022 9:00	41060	41060	394.8895386	MPN/100 ml	100
Downstream	26	LCC22-RE-07-D	Inorganics	Hardness as calcium carbonate	11/12/2022 9:00	120	120	394.8895386	mg/l	6
Downstream	26	LCC22-RE-07-D	Inorganics	Nitrate Nitrite as N	11/12/2022 9:00	1.3	1.3	394.8895386	mg/l	0.04
Downstream	26	LCC22-RE-07-D	Inorganics	Total Kjeldahl Nitrogen	11/12/2022 9:00	1.3	1.3	394.8895386	mg/l	0.5
Downstream	26	LCC22-RE-07-D	Inorganics	Total Phosphorus as P	11/12/2022 9:00	0.5	0.5	394.8895386	mg/l	0.05
Downstream	26	LCC22-RE-07-D	Inorganics	Total Suspended Solids	11/12/2022 9:00	4.8	4.8	394.8895386	mg/l	1
Downstream	26	LCC22-RE-07-D	Metals	Copper	11/12/2022 9:00	6.9	6.9	394.8895386	ug/l	0.36
Downstream	26	LCC22-RE-07-D	Metals	Lead	11/12/2022 9:00	0.37	0.37	394.8895386	ug/l	0.071
Downstream	26	LCC22-RE-07-D	Metals	Zinc	11/12/2022 9:00	0	4	394.8895386	ug/l	4
Downstream	26	LCC22-RE-07-D	Oil & Grease	SGT-HEM (TPH)	11/12/2022 9:00	1.7	1.7	394.8895386	mg/l	1.6
Upstream	27	LCC22-BF02-U	BOD	Biochemical Oxygen Demand	1/31/2023 11:20	0	1.5	418.0177166	mg/l	1.5
Upstream	27	LCC22-BF02-U	E. coli	E. coli	1/31/2023 11:20	200	200	418.0177166	MPN/100 ml	100
Upstream	27	LCC22-BF02-U	Inorganics	Hardness as calcium carbonate	1/31/2023 11:20	120	120	418.0177166	mg/l	15
Upstream	27	LCC22-BF02-U	Inorganics	Nitrate Nitrite as N	1/31/2023 11:20	4.4	4.4	418.0177166	mg/l	0.08
Upstream	27	LCC22-BF02-U	Inorganics	Total Kjeldahl Nitrogen	1/31/2023 11:20	0	0.5	418.0177166	mg/l	0.5
Upstream	27	LCC22-BF02-U	Inorganics	Total Phosphorus as P	1/31/2023 11:20	0	0.05	418.0177166	mg/l	0.05
Upstream	27	LCC22-BF02-U	Inorganics	Total Suspended Solids	1/31/2023 11:20	3.3	3.3	418.0177166	mg/l	1
Upstream	27	LCC22-BF02-U	Metals	Copper	1/31/2023 11:20	0.59	0.59	418.0177166	ug/l	0.36
Upstream	27	LCC22-BF02-U	Metals	Lead	1/31/2023 11:20	0	0.071	418.0177166	ug/l	0.071
Upstream	27	LCC22-BF02-U	Metals	Zinc	1/31/2023 11:20	0	4	418.0177166	ug/l	4
Upstream	27	LCC22-BF02-U	Oil & Grease	SGT-HEM (TPH)	1/31/2023 11:20	0	1.6	418.0177166	mg/l	1.6
Downstream	28	LCC22-BF02-D	BOD	Biochemical Oxygen Demand	1/31/2023 13:30	0	1.5	394.6823031	mg/l	1.5
Downstream	28	LCC22-BF02-D	E. coli	E. coli	1/31/2023 13:30	0	100	394.6823031	MPN/100 ml	100
Downstream	28	LCC22-BF02-D	Inorganics	Hardness as calcium carbonate	1/31/2023 13:30	120	120	394.6823031	mg/l	15
Downstream	28	LCC22-BF02-D	Inorganics	Nitrate Nitrite as N	1/31/2023 13:30	4.1	4.1	394.6823031	mg/l	0.08
Downstream	28	LCC22-BF02-D	Inorganics	Total Kjeldahl Nitrogen	1/31/2023 13:30	0	0.5	394.6823031	mg/l	0.5
Downstream	28	LCC22-BF02-D	Inorganics	Total Phosphorus as P	1/31/2023 13:30	0	0.05	394.6823031	mg/l	0.05
Downstream	28	LCC22-BF02-D	Inorganics	Total Suspended Solids	1/31/2023 13:30	1.2	1.2	394.6823031	mg/l	1
Downstream	28	LCC22-BF02-D	Metals	Copper	1/31/2023 13:30	0.65	0.65	394.6823031	ug/l	0.36
Downstream	28	LCC22-BF02-D	Metals	Lead	1/31/2023 13:30	0	0.071	394.6823031	ug/l	0.071
Downstream	28	LCC22-BF02-D	Metals	Zinc	1/31/2023 13:30	0	4	394.6823031	ug/l	4
Downstream	28	LCC22-BF02-D	Oil & Grease	SGT-HEM (TPH)	1/31/2023 13:30	0	1.6	394.6823031	mg/l	1.6
Upstream	29	RI-08-U	BOD	Biochemical Oxygen Demand	2/16/2023 12:38	0	2	417.9225722	mg/l	2
Upstream	29	RI-08-U	E. coli	E. coli	2/16/2023 12:38	602	602	417.9225722	MPN/100 ml	10
Upstream	29	RI-08-U	Inorganics	Hardness as calcium carbonate	2/16/2023 12:38	120	120	417.9225722	mg/l	15
Upstream	29	RI-08-U	Inorganics	Nitrate Nitrite as N	2/16/2023 12:38	3.5	3.5	417.9225722	mg/l	0.08

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Upstream	29	RI-08-U	Inorganics	Total Kjeldahl Nitrogen	2/16/2023 12:38	0.85	0.85	417.9225722	mg/l	0.5
Upstream	29	RI-08-U	Inorganics	Total Phosphorus as P	2/16/2023 12:38	0	0.05	417.9225722	mg/l	0.05
Upstream	29	RI-08-U	Inorganics	Total Suspended Solids	2/16/2023 12:38	5.5	5.5	417.9225722	mg/l	1
Upstream	29	RI-08-U	Metals	Copper	2/16/2023 12:38	0.59	0.59	417.9225722	ug/l	0.36
Upstream	29	RI-08-U	Metals	Lead	2/16/2023 12:38	0.13	0.13	417.9225722	ug/l	0.071
Upstream	29	RI-08-U	Metals	Zinc	2/16/2023 12:38	0	4	417.9225722	ug/l	4
Upstream	29	RI-08-U	Oil & Grease	SGT-HEM (TPH)	2/16/2023 12:38	0	1.6	417.9225722	mg/l	1.6
Upstream	29	LCC22-P-08-U	BOD	Biochemical Oxygen Demand	2/17/2023 10:30	10	10	418.6509187	mg/l	2
Upstream	29	LCC22-P-08-U	E. coli	E. coli	2/17/2023 10:30	12590	12590	418.6509187	MPN/100 ml	100
Upstream	29	LCC22-P-08-U	Inorganics	Hardness as calcium carbonate	2/17/2023 10:30	91	91	418.6509187	mg/l	15
Upstream	29	LCC22-P-08-U	Inorganics	Nitrate Nitrite as N	2/17/2023 10:30	2.1	2.1	418.6509187	mg/l	0.04
Upstream	29	LCC22-P-08-U	Inorganics	Total Kjeldahl Nitrogen	2/17/2023 10:30	1.7	1.7	418.6509187	mg/l	0.5
Upstream	29	LCC22-P-08-U	Inorganics	Total Phosphorus as P	2/17/2023 10:30	0.31	0.31	418.6509187	mg/l	0.05
Upstream	29	LCC22-P-08-U	Inorganics	Total Suspended Solids	2/17/2023 10:30	95	95	418.6509187	mg/l	4
Upstream	29	LCC22-P-08-U	Metals	Copper	2/17/2023 10:30	7.5	7.5	418.6509187	ug/l	0.36
Upstream	29	LCC22-P-08-U	Metals	Lead	2/17/2023 10:30	2.7	2.7	418.6509187	ug/l	0.071
Upstream	29	LCC22-P-08-U	Metals	Zinc	2/17/2023 10:30	14	14	418.6509187	ug/l	4
Upstream	29	LCC22-P-08-U	Oil & Grease	SGT-HEM (TPH)	2/17/2023 10:30	0	1.6	418.6509187	mg/l	1.6
Upstream	29	LCC22-RE-08-U	BOD	Biochemical Oxygen Demand	2/17/2023 12:50	6.6	6.6	418.5295276	mg/l	2
Upstream	29	LCC22-RE-08-U	E. coli	E. coli	2/17/2023 12:50	5040	5040	418.5295276	MPN/100 ml	100
Upstream	29	LCC22-RE-08-U	Inorganics	Hardness as calcium carbonate	2/17/2023 12:50	94	94	418.5295276	mg/l	15
Upstream	29	LCC22-RE-08-U	Inorganics	Nitrate Nitrite as N	2/17/2023 12:50	1.8	1.8	418.5295276	mg/l	0.04
Upstream	29	LCC22-RE-08-U	Inorganics	Total Kjeldahl Nitrogen	2/17/2023 12:50	2.1	2.1	418.5295276	mg/l	0.5
Upstream	29	LCC22-RE-08-U	Inorganics	Total Phosphorus as P	2/17/2023 12:50	0.21	0.21	418.5295276	mg/l	0.05
Upstream	29	LCC22-RE-08-U	Inorganics	Total Suspended Solids	2/17/2023 12:50	32	32	418.5295276	mg/l	2
Upstream	29	LCC22-RE-08-U	Metals	Copper	2/17/2023 12:50	6.4	6.4	418.5295276	ug/l	0.36
Upstream	29	LCC22-RE-08-U	Metals	Lead	2/17/2023 12:50	1.5	1.5	418.5295276	ug/l	0.071
Upstream	29	LCC22-RE-08-U	Metals	Zinc	2/17/2023 12:50	10	10	418.5295276	ug/l	4
Upstream	29	LCC22-RE-08-U	Oil & Grease	SGT-HEM (TPH)	2/17/2023 12:50	0	1.5	418.5295276	mg/l	1.5
Downstream	30	RI-08-D	BOD	Biochemical Oxygen Demand	2/16/2023 13:00	0	2	394.8377038	mg/l	2
Downstream	30	RI-08-D	E. coli	E. coli	2/16/2023 13:00	73	73	394.8377038	MPN/100 ml	10
Downstream	30	RI-08-D	Inorganics	Hardness as calcium carbonate	2/16/2023 13:00	120	120	394.8377038	mg/l	15
Downstream	30	RI-08-D	Inorganics	Nitrate Nitrite as N	2/16/2023 13:00	3.2	3.2	394.8377038	mg/l	0.08
Downstream	30	RI-08-D	Inorganics	Total Kjeldahl Nitrogen	2/16/2023 13:00	0.72	0.72	394.8377038	mg/l	0.5
Downstream	30	RI-08-D	Inorganics	Total Phosphorus as P	2/16/2023 13:00	0	0.05	394.8377038	mg/l	0.05
Downstream	30	RI-08-D	Inorganics	Total Suspended Solids	2/16/2023 13:00	5.8	5.8	394.8377038	mg/l	1
Downstream	30	RI-08-D	Metals	Copper	2/16/2023 13:00	0.62	0.62	394.8377038	ug/l	0.36
Downstream	30	RI-08-D	Metals	Lead	2/16/2023 13:00	0.12	0.12	394.8377038	ug/l	0.071
Downstream	30	RI-08-D	Metals	Zinc	2/16/2023 13:00	0	4	394.8377038	ug/l	4
Downstream	30	RI-08-D	Oil & Grease	SGT-HEM (TPH)	2/16/2023 13:00	0	1.6	394.8377038	mg/l	1.6
Downstream	30	LCC22-P-08-D	BOD	Biochemical Oxygen Demand	2/17/2023 11:00	7.5	7.5	395.138339	mg/l	2
Downstream	30	LCC22-P-08-D	E. coli	E. coli	2/17/2023 11:00	8840	8840	395.138339	MPN/100 ml	100
Downstream	30	LCC22-P-08-D	Inorganics	Hardness as calcium carbonate	2/17/2023 11:00	99	99	395.138339	mg/l	15
Downstream	30	LCC22-P-08-D	Inorganics	Nitrate Nitrite as N	2/17/2023 11:00	2.3	2.3	395.138339	mg/l	0.04
Downstream	30	LCC22-P-08-D	Inorganics	Total Kjeldahl Nitrogen	2/17/2023 11:00	1.5	1.5	395.138339	mg/l	0.5
Downstream	30	LCC22-P-08-D	Inorganics	Total Phosphorus as P	2/17/2023 11:00	0.36	0.36	395.138339	mg/l	0.05
Downstream	30	LCC22-P-08-D	Inorganics	Total Suspended Solids	2/17/2023 11:00	96	96	395.138339	mg/l	4
Downstream	30	LCC22-P-08-D	Metals	Copper	2/17/2023 11:00	5.4	5.4	395.138339	ug/l	0.36
Downstream	30	LCC22-P-08-D	Metals	Lead	2/17/2023 11:00	2.1	2.1	395.138339	ug/l	0.071
Downstream	30	LCC22-P-08-D	Metals	Zinc	2/17/2023 11:00	9.9	9.9	395.138339	ug/l	4
Downstream	30	LCC22-P-08-D	Oil & Grease	SGT-HEM (TPH)	2/17/2023 11:00	0	1.6	395.138339	mg/l	1.6

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Downstream	30	LCC22-RE-08-D	BOD	Biochemical Oxygen Demand	2/17/2023 13:20	5.7	5.7	395.0520669	mg/l	2
Downstream	30	LCC22-RE-08-D	E. coli	E. coli	2/17/2023 13:20	4640	4640	395.0520669	MPN/100 ml	100
Downstream	30	LCC22-RE-08-D	Inorganics	Hardness as calcium carbonate	2/17/2023 13:20	95	95	395.0520669	mg/l	15
Downstream	30	LCC22-RE-08-D	Inorganics	Nitrate Nitrite as N	2/17/2023 13:20	1.9	1.9	395.0520669	mg/l	0.04
Downstream	30	LCC22-RE-08-D	Inorganics	Total Kjeldahl Nitrogen	2/17/2023 13:20	1.5	1.5	395.0520669	mg/l	0.5
Downstream	30	LCC22-RE-08-D	Inorganics	Total Phosphorus as P	2/17/2023 13:20	0.2	0.2	395.0520669	mg/l	0.05
Downstream	30	LCC22-RE-08-D	Inorganics	Total Suspended Solids	2/17/2023 13:20	38	38	395.0520669	mg/l	1.8
Downstream	30	LCC22-RE-08-D	Metals	Copper	2/17/2023 13:20	5.5	5.5	395.0520669	ug/l	0.36
Downstream	30	LCC22-RE-08-D	Metals	Lead	2/17/2023 13:20	1.5	1.5	395.0520669	ug/l	0.071
Downstream	30	LCC22-RE-08-D	Metals	Zinc	2/17/2023 13:20	8.1	8.1	395.0520669	ug/l	4
Downstream	30	LCC22-RE-08-D	Oil & Grease	SGT-HEM (TPH)	2/17/2023 13:20	0	1.5	395.0520669	mg/l	1.5
Upstream	31	LCC22-RI-09-U	BOD	Biochemical Oxygen Demand	3/10/2023 11:00	11	11	417.9947507	mg/l	1.5
Upstream	31	LCC22-RI-09-U	E. coli	E. coli	3/10/2023 11:00	512	512	417.9947507	MPN/100 ml	10
Upstream	31	LCC22-RI-09-U	Inorganics	Hardness as calcium carbonate	3/10/2023 11:00	93	93	417.9947507	mg/l	15
Upstream	31	LCC22-RI-09-U	Inorganics	Nitrate Nitrite as N	3/10/2023 11:00	4.2	4.2	417.9947507	mg/l	0.08
Upstream	31	LCC22-RI-09-U	Inorganics	Total Kjeldahl Nitrogen	3/10/2023 11:00	0.87	0.87	417.9947507	mg/l	0.5
Upstream	31	LCC22-RI-09-U	Inorganics	Total Phosphorus as P	3/10/2023 11:00	0.16	0.16	417.9947507	mg/l	0.05
Upstream	31	LCC22-RI-09-U	Inorganics	Total Suspended Solids	3/10/2023 11:00	2.5	2.5	417.9947507	mg/l	1
Upstream	31	LCC22-RI-09-U	Metals	Copper	3/10/2023 11:00	0.69	0.69	417.9947507	ug/l	0.36
Upstream	31	LCC22-RI-09-U	Metals	Lead	3/10/2023 11:00	0	0.071	417.9947507	ug/l	0.071
Upstream	31	LCC22-RI-09-U	Metals	Zinc	3/10/2023 11:00	0	4	417.9947507	ug/l	4
Upstream	31	LCC22-RI-09-U	Oil & Grease	SGT-HEM (TPH)	3/10/2023 11:00	0	1.6	417.9947507	mg/l	1.6
Upstream	31	LCC22-P-09-U	BOD	Biochemical Oxygen Demand	3/10/2023 12:30	11	11	417.9980316	mg/l	1.5
Upstream	31	LCC22-P-09-U	E. coli	E. coli	3/10/2023 12:30	850	850	417.9980316	MPN/100 ml	100
Upstream	31	LCC22-P-09-U	Inorganics	Hardness as calcium carbonate	3/10/2023 12:30	130	130	417.9980316	mg/l	15
Upstream	31	LCC22-P-09-U	Inorganics	Nitrate Nitrite as N	3/10/2023 12:30	4.1	4.1	417.9980316	mg/l	0.08
Upstream	31	LCC22-P-09-U	Inorganics	Total Kjeldahl Nitrogen	3/10/2023 12:30	1.3	1.3	417.9980316	mg/l	0.5
Upstream	31	LCC22-P-09-U	Inorganics	Total Phosphorus as P	3/10/2023 12:30	0.2	0.2	417.9980316	mg/l	0.05
Upstream	31	LCC22-P-09-U	Inorganics	Total Suspended Solids	3/10/2023 12:30	2.3	2.3	417.9980316	mg/l	1
Upstream	31	LCC22-P-09-U	Metals	Copper	3/10/2023 12:30	0.74	0.74	417.9980316	ug/l	0.36
Upstream	31	LCC22-P-09-U	Metals	Lead	3/10/2023 12:30	0	0.071	417.9980316	ug/l	0.071
Upstream	31	LCC22-P-09-U	Metals	Zinc	3/10/2023 12:30	0	4	417.9980316	ug/l	4
Upstream	31	LCC22-P-09-U	Oil & Grease	SGT-HEM (TPH)	3/10/2023 12:30	0	1.5	417.9980316	mg/l	1.5
Upstream	31	LCC22-RE-09-U	BOD	Biochemical Oxygen Demand	3/10/2023 13:45	18	18	417.9980316	mg/l	1.5
Upstream	31	LCC22-RE-09-U	E. coli	E. coli	3/10/2023 13:45	840	840	417.9980316	MPN/100 ml	100
Upstream	31	LCC22-RE-09-U	Inorganics	Hardness as calcium carbonate	3/10/2023 13:45	98	98	417.9980316	mg/l	15
Upstream	31	LCC22-RE-09-U	Inorganics	Nitrate Nitrite as N	3/10/2023 13:45	4.6	4.6	417.9980316	mg/l	0.08
Upstream	31	LCC22-RE-09-U	Inorganics	Total Kjeldahl Nitrogen	3/10/2023 13:45	1.5	1.5	417.9980316	mg/l	0.5
Upstream	31	LCC22-RE-09-U	Inorganics	Total Phosphorus as P	3/10/2023 13:45	0.17	0.17	417.9980316	mg/l	0.05
Upstream	31	LCC22-RE-09-U	Inorganics	Total Suspended Solids	3/10/2023 13:45	7.6	7.6	417.9980316	mg/l	1
Upstream	31	LCC22-RE-09-U	Metals	Copper	3/10/2023 13:45	1.2	1.2	417.9980316	ug/l	0.36
Upstream	31	LCC22-RE-09-U	Metals	Lead	3/10/2023 13:45	0.17	0.17	417.9980316	ug/l	0.071
Upstream	31	LCC22-RE-09-U	Metals	Zinc	3/10/2023 13:45	0	4	417.9980316	ug/l	4
Upstream	31	LCC22-RE-09-U	Oil & Grease	SGT-HEM (TPH)	3/10/2023 13:45	0	1.6	417.9980316	mg/l	1.6
Downstream	32	LCC22-RI-09-D	BOD	Biochemical Oxygen Demand	3/10/2023 11:30	3.8	3.8	394.664949	mg/l	1.5
Downstream	32	LCC22-RI-09-D	E. coli	E. coli	3/10/2023 11:30	422	422	394.664949	MPN/100 ml	10
Downstream	32	LCC22-RI-09-D	Inorganics	Hardness as calcium carbonate	3/10/2023 11:30	130	130	394.664949	mg/l	15
Downstream	32	LCC22-RI-09-D	Inorganics	Nitrate Nitrite as N	3/10/2023 11:30	4.4	4.4	394.664949	mg/l	0.08
Downstream	32	LCC22-RI-09-D	Inorganics	Total Kjeldahl Nitrogen	3/10/2023 11:30	0.66	0.66	394.664949	mg/l	0.5
Downstream	32	LCC22-RI-09-D	Inorganics	Total Phosphorus as P	3/10/2023 11:30	0.08	0.08	394.664949	mg/l	0.05
Downstream	32	LCC22-RI-09-D	Inorganics	Total Suspended Solids	3/10/2023 11:30	9.3	9.3	394.664949	mg/l	1

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Downstream	32	LCC22-RI-09-D	Metals	Copper	3/10/2023 11:30	0.59	0.59	394.664949	ug/l	0.36
Downstream	32	LCC22-RI-09-D	Metals	Lead	3/10/2023 11:30	0	0.071	394.664949	ug/l	0.071
Downstream	32	LCC22-RI-09-D	Metals	Zinc	3/10/2023 11:30	0	4	394.664949	ug/l	4
Downstream	32	LCC22-RI-09-D	Oil & Grease	SGT-HEM (TPH)	3/10/2023 11:30	0	1.5	394.664949	mg/l	1.5
Downstream	32	LCC22-P-09-D	BOD	Biochemical Oxygen Demand	3/10/2023 12:50	8.9	8.9	394.6716488	mg/l	1.5
Downstream	32	LCC22-P-09-D	E. coli	E. coli	3/10/2023 12:50	231	231	394.6716488	MPN/100 ml	1
Downstream	32	LCC22-P-09-D	Inorganics	Hardness as calcium carbonate	3/10/2023 12:50	82	82	394.6716488	mg/l	15
Downstream	32	LCC22-P-09-D	Inorganics	Nitrate Nitrite as N	3/10/2023 12:50	4.3	4.3	394.6716488	mg/l	0.08
Downstream	32	LCC22-P-09-D	Inorganics	Total Kjeldahl Nitrogen	3/10/2023 12:50	0.77	0.77	394.6716488	mg/l	0.5
Downstream	32	LCC22-P-09-D	Inorganics	Total Phosphorus as P	3/10/2023 12:50	0.072	0.072	394.6716488	mg/l	0.05
Downstream	32	LCC22-P-09-D	Inorganics	Total Suspended Solids	3/10/2023 12:50	1.6	1.6	394.6716488	mg/l	1
Downstream	32	LCC22-P-09-D	Metals	Copper	3/10/2023 12:50	1	1	394.6716488	ug/l	0.36
Downstream	32	LCC22-P-09-D	Metals	Lead	3/10/2023 12:50	0	0.071	394.6716488	ug/l	0.071
Downstream	32	LCC22-P-09-D	Metals	Zinc	3/10/2023 12:50	0	4	394.6716488	ug/l	4
Downstream	32	LCC22-P-09-D	Oil & Grease	SGT-HEM (TPH)	3/10/2023 12:50	0	1.5	394.6716488	mg/l	1.5
Downstream	32	LCC22-RE-09-D	BOD	Biochemical Oxygen Demand	3/10/2023 14:40	10	10	394.6691226	mg/l	1.5
Downstream	32	LCC22-RE-09-D	E. coli	E. coli	3/10/2023 14:40	310	310	394.6691226	MPN/100 ml	100
Downstream	32	LCC22-RE-09-D	Inorganics	Hardness as calcium carbonate	3/10/2023 14:40	110	110	394.6691226	mg/l	15
Downstream	32	LCC22-RE-09-D	Inorganics	Nitrate Nitrite as N	3/10/2023 14:40	4.1	4.1	394.6691226	mg/l	0.08
Downstream	32	LCC22-RE-09-D	Inorganics	Total Kjeldahl Nitrogen	3/10/2023 14:40	1.1	1.1	394.6691226	mg/l	0.5
Downstream	32	LCC22-RE-09-D	Inorganics	Total Phosphorus as P	3/10/2023 14:40	0.093	0.093	394.6691226	mg/l	0.05
Downstream	32	LCC22-RE-09-D	Inorganics	Total Suspended Solids	3/10/2023 14:40	2.1	2.1	394.6691226	mg/l	1
Downstream	32	LCC22-RE-09-D	Metals	Copper	3/10/2023 14:40	0.61	0.61	394.6691226	ug/l	0.36
Downstream	32	LCC22-RE-09-D	Metals	Lead	3/10/2023 14:40	0	0.071	394.6691226	ug/l	0.071
Downstream	32	LCC22-RE-09-D	Metals	Zinc	3/10/2023 14:40	0	4	394.6691226	ug/l	4
Downstream	32	LCC22-RE-09-D	Oil & Grease	SGT-HEM (TPH)	3/10/2023 14:40	0	1.6	394.6691226	mg/l	1.6
Upstream	33	LCC23-RI-10-U	BOD	Biochemical Oxygen Demand	3/24/2023 9:00	14	14	418.07021	mg/l	2
Upstream	33	LCC23-RI-10-U	E. coli	E. coli	3/24/2023 9:00	8164	8164	418.07021	MPN/100 ml	10
Upstream	33	LCC23-RI-10-U	Inorganics	Hardness as calcium carbonate	3/24/2023 9:00	110	110	418.07021	mg/l	6
Upstream	33	LCC23-RI-10-U	Inorganics	Nitrate Nitrite as N	3/24/2023 9:00	5	5	418.07021	mg/l	0.08
Upstream	33	LCC23-RI-10-U	Inorganics	Total Kjeldahl Nitrogen	3/24/2023 9:00	2	2	418.07021	mg/l	0.5
Upstream	33	LCC23-RI-10-U	Inorganics	Total Phosphorus as P	3/24/2023 9:00	0.32	0.32	418.07021	mg/l	0.05
Upstream	33	LCC23-RI-10-U	Inorganics	Total Suspended Solids	3/24/2023 9:00	9.4	9.4	418.07021	mg/l	2
Upstream	33	LCC23-RI-10-U	Metals	Copper	3/24/2023 9:00	2.5	2.5	418.07021	ug/l	0.36
Upstream	33	LCC23-RI-10-U	Metals	Lead	3/24/2023 9:00	0.48	0.48	418.07021	ug/l	0.071
Upstream	33	LCC23-RI-10-U	Metals	Zinc	3/24/2023 9:00	4.5	4.5	418.07021	ug/l	4
Upstream	33	LCC23-RI-10-U	Oil & Grease	SGT-HEM (TPH)	3/24/2023 9:00	0	1.5	418.07021	mg/l	1.5
Upstream	33	LCC23-P-10-U	BOD	Biochemical Oxygen Demand	3/25/2023 8:30	4.9	4.9	418.0570867	mg/l	2
Upstream	33	LCC23-P-10-U	E. coli	E. coli	3/25/2023 8:30	3873	3873	418.0570867	MPN/100 ml	10
Upstream	33	LCC23-P-10-U	Inorganics	Hardness as calcium carbonate	3/25/2023 8:30	110	110	418.0570867	mg/l	6
Upstream	33	LCC23-P-10-U	Inorganics	Nitrate Nitrite as N	3/25/2023 8:30	4.4	4.4	418.0570867	mg/l	0.08
Upstream	33	LCC23-P-10-U	Inorganics	Total Kjeldahl Nitrogen	3/25/2023 8:30	2.3	2.3	418.0570867	mg/l	0.5
Upstream	33	LCC23-P-10-U	Inorganics	Total Phosphorus as P	3/25/2023 8:30	0.13	0.13	418.0570867	mg/l	0.05
Upstream	33	LCC23-P-10-U	Inorganics	Total Suspended Solids	3/25/2023 8:30	6.4	6.4	418.0570867	mg/l	1
Upstream	33	LCC23-P-10-U	Metals	Copper	3/25/2023 8:30	2.4	2.4	418.0570867	ug/l	0.36
Upstream	33	LCC23-P-10-U	Metals	Lead	3/25/2023 8:30	0.26	0.26	418.0570867	ug/l	0.071
Upstream	33	LCC23-P-10-U	Metals	Zinc	3/25/2023 8:30	5.8	5.8	418.0570867	ug/l	4
Upstream	33	LCC23-P-10-U	Oil & Grease	SGT-HEM (TPH)	3/25/2023 8:30	0	1.5	418.0570867	mg/l	1.5
Upstream	33	LCC23-RE-10-U	BOD	Biochemical Oxygen Demand	3/25/2023 9:30	21	21	418.2604988	mg/l	2
Upstream	33	LCC23-RE-10-U	E. coli	E. coli	3/25/2023 9:30	24196	24196	418.2604988	MPN/100 ml	10
Upstream	33	LCC23-RE-10-U	Inorganics	Hardness as calcium carbonate	3/25/2023 9:30	91	91	418.2604988	mg/l	15

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Upstream	33	LCC23-RE-10-U	Inorganics	Nitrate Nitrite as N	3/25/2023 9:30	2.1	2.1	418.2604988	mg/l	0.04
Upstream	33	LCC23-RE-10-U	Inorganics	Total Kjeldahl Nitrogen	3/25/2023 9:30	3.1	3.1	418.2604988	mg/l	0.5
Upstream	33	LCC23-RE-10-U	Inorganics	Total Phosphorus as P	3/25/2023 9:30	0.59	0.59	418.2604988	mg/l	0.05
Upstream	33	LCC23-RE-10-U	Inorganics	Total Suspended Solids	3/25/2023 9:30	37	37	418.2604988	mg/l	2
Upstream	33	LCC23-RE-10-U	Metals	Copper	3/25/2023 9:30	5.8	5.8	418.2604988	ug/l	0.36
Upstream	33	LCC23-RE-10-U	Metals	Lead	3/25/2023 9:30	2.2	2.2	418.2604988	ug/l	0.071
Upstream	33	LCC23-RE-10-U	Metals	Zinc	3/25/2023 9:30	22	22	418.2604988	ug/l	4
Upstream	33	LCC23-RE-10-U	Oil & Grease	SGT-HEM (TPH)	3/25/2023 9:30	0	1.6	418.2604988	mg/l	1.6
Downstream	34	LCC23-RI-10-D	BOD	Biochemical Oxygen Demand	3/24/2023 9:30	5.9	5.9	394.7535091	mg/l	2
Downstream	34	LCC23-RI-10-D	E. coli	E. coli	3/24/2023 9:30	5664	5664	394.7535091	MPN/100 ml	10
Downstream	34	LCC23-RI-10-D	Inorganics	Hardness as calcium carbonate	3/24/2023 9:30	110	110	394.7535091	mg/l	6
Downstream	34	LCC23-RI-10-D	Inorganics	Nitrate Nitrite as N	3/24/2023 9:30	2.5	2.5	394.7535091	mg/l	0.08
Downstream	34	LCC23-RI-10-D	Inorganics	Total Kjeldahl Nitrogen	3/24/2023 9:30	1.3	1.3	394.7535091	mg/l	0.5
Downstream	34	LCC23-RI-10-D	Inorganics	Total Phosphorus as P	3/24/2023 9:30	0.21	0.21	394.7535091	mg/l	0.05
Downstream	34	LCC23-RI-10-D	Inorganics	Total Suspended Solids	3/24/2023 9:30	8	8	394.7535091	mg/l	1.4
Downstream	34	LCC23-RI-10-D	Metals	Copper	3/24/2023 9:30	2.7	2.7	394.7535091	ug/l	0.36
Downstream	34	LCC23-RI-10-D	Metals	Lead	3/24/2023 9:30	0.51	0.51	394.7535091	ug/l	0.071
Downstream	34	LCC23-RI-10-D	Metals	Zinc	3/24/2023 9:30	4.6	4.6	394.7535091	ug/l	4
Downstream	34	LCC23-RI-10-D	Oil & Grease	SGT-HEM (TPH)	3/24/2023 9:30	0	1.5	394.7535091	mg/l	1.5
Downstream	34	LCC23-P-10-D	BOD	Biochemical Oxygen Demand	3/25/2023 9:00	3.7	3.7	394.7627666	mg/l	2
Downstream	34	LCC23-P-10-D	E. coli	E. coli	3/25/2023 9:00	4352	4352	394.7627666	MPN/100 ml	10
Downstream	34	LCC23-P-10-D	Inorganics	Hardness as calcium carbonate	3/25/2023 9:00	110	110	394.7627666	mg/l	6
Downstream	34	LCC23-P-10-D	Inorganics	Nitrate Nitrite as N	3/25/2023 9:00	2.2	2.2	394.7627666	mg/l	0.04
Downstream	34	LCC23-P-10-D	Inorganics	Total Kjeldahl Nitrogen	3/25/2023 9:00	2	2	394.7627666	mg/l	0.5
Downstream	34	LCC23-P-10-D	Inorganics	Total Phosphorus as P	3/25/2023 9:00	0.14	0.14	394.7627666	mg/l	0.05
Downstream	34	LCC23-P-10-D	Inorganics	Total Suspended Solids	3/25/2023 9:00	11	11	394.7627666	mg/l	1
Downstream	34	LCC23-P-10-D	Metals	Copper	3/25/2023 9:00	2.4	2.4	394.7627666	ug/l	0.36
Downstream	34	LCC23-P-10-D	Metals	Lead	3/25/2023 9:00	0.37	0.37	394.7627666	ug/l	0.071
Downstream	34	LCC23-P-10-D	Metals	Zinc	3/25/2023 9:00	0	4	394.7627666	ug/l	4
Downstream	34	LCC23-P-10-D	Oil & Grease	SGT-HEM (TPH)	3/25/2023 9:00	0	1.6	394.7627666	mg/l	1.6
Downstream	34	LCC23-RE-10-D	BOD	Biochemical Oxygen Demand	3/25/2023 9:45	3.4	3.4	394.8407977	mg/l	2
Downstream	34	LCC23-RE-10-D	E. coli	E. coli	3/25/2023 9:45	2909	2909	394.8407977	MPN/100 ml	10
Downstream	34	LCC23-RE-10-D	Inorganics	Hardness as calcium carbonate	3/25/2023 9:45	110	110	394.8407977	mg/l	15
Downstream	34	LCC23-RE-10-D	Inorganics	Nitrate Nitrite as N	3/25/2023 9:45	3.7	3.7	394.8407977	mg/l	0.08
Downstream	34	LCC23-RE-10-D	Inorganics	Total Kjeldahl Nitrogen	3/25/2023 9:45	1.6	1.6	394.8407977	mg/l	0.5
Downstream	34	LCC23-RE-10-D	Inorganics	Total Phosphorus as P	3/25/2023 9:45	0.11	0.11	394.8407977	mg/l	0.05
Downstream	34	LCC23-RE-10-D	Inorganics	Total Suspended Solids	3/25/2023 9:45	7.7	7.7	394.8407977	mg/l	1.4
Downstream	34	LCC23-RE-10-D	Metals	Copper	3/25/2023 9:45	2.3	2.3	394.8407977	ug/l	0.36
Downstream	34	LCC23-RE-10-D	Metals	Lead	3/25/2023 9:45	0.36	0.36	394.8407977	ug/l	0.071
Downstream	34	LCC23-RE-10-D	Metals	Zinc	3/25/2023 9:45	0	4	394.8407977	ug/l	4
Downstream	34	LCC23-RE-10-D	Oil & Grease	SGT-HEM (TPH)	3/25/2023 9:45	0	1.6	394.8407977	mg/l	1.6
Upstream	35	LCC23-RI-11-U	BOD	Biochemical Oxygen Demand	4/28/2023 9:00	7.4	7.4	417.8897638	mg/l	2
Upstream	35	LCC23-RI-11-U	E. coli	E. coli	4/28/2023 9:00	3873	3873	417.8897638	MPN/100 ml	10
Upstream	35	LCC23-RI-11-U	Inorganics	Hardness as calcium carbonate	4/28/2023 9:00	79	79	417.8897638	mg/l	15
Upstream	35	LCC23-RI-11-U	Inorganics	Nitrate Nitrite as N	4/28/2023 9:00	1.3	1.3	417.8897638	mg/l	0.04
Upstream	35	LCC23-RI-11-U	Inorganics	Total Kjeldahl Nitrogen	4/28/2023 9:00	1	1	417.8897638	mg/l	0.5
Upstream	35	LCC23-RI-11-U	Inorganics	Total Phosphorus as P	4/28/2023 9:00	0.11	0.11	417.8897638	mg/l	0.05
Upstream	35	LCC23-RI-11-U	Inorganics	Total Suspended Solids	4/28/2023 9:00	9.4	9.4	417.8897638	mg/l	1
Upstream	35	LCC23-RI-11-U	Metals	Copper	4/28/2023 9:00	1	1	417.8897638	ug/l	0.36
Upstream	35	LCC23-RI-11-U	Metals	Lead	4/28/2023 9:00	0.12	0.12	417.8897638	ug/l	0.071
Upstream	35	LCC23-RI-11-U	Metals	Zinc	4/28/2023 9:00	0	4	417.8897638	ug/l	4

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Upstream	35	LCC23-RI-11-U	Oil & Grease	SGT-HEM (TPH)	4/28/2023 9:00	0	1.5	417.8897638	mg/l	1.5
Upstream	35	LCC23-P-11-U	BOD	Biochemical Oxygen Demand	4/28/2023 15:15	9.6	9.6	418.1489502	mg/l	2
Upstream	35	LCC23-P-11-U	E. coli	E. coli	4/28/2023 15:15	24196	24196	418.1489502	MPN/100 ml	10
Upstream	35	LCC23-P-11-U	Inorganics	Hardness as calcium carbonate	4/28/2023 15:15	69	69	418.1489502	mg/l	15
Upstream	35	LCC23-P-11-U	Inorganics	Nitrate Nitrite as N	4/28/2023 15:15	1.7	1.7	418.1489502	mg/l	0.04
Upstream	35	LCC23-P-11-U	Inorganics	Total Kjeldahl Nitrogen	4/28/2023 15:15	1.7	1.7	418.1489502	mg/l	0.5
Upstream	35	LCC23-P-11-U	Inorganics	Total Phosphorus as P	4/28/2023 15:15	0.31	0.31	418.1489502	mg/l	0.05
Upstream	35	LCC23-P-11-U	Inorganics	Total Suspended Solids	4/28/2023 15:15	10	10	418.1489502	mg/l	1
Upstream	35	LCC23-P-11-U	Metals	Copper	4/28/2023 15:15	2.9	2.9	418.1489502	ug/l	0.36
Upstream	35	LCC23-P-11-U	Metals	Lead	4/28/2023 15:15	0.46	0.46	418.1489502	ug/l	0.071
Upstream	35	LCC23-P-11-U	Metals	Zinc	4/28/2023 15:15	6.7	6.7	418.1489502	ug/l	4
Upstream	35	LCC23-P-11-U	Oil & Grease	SGT-HEM (TPH)	4/28/2023 15:15	0	1.6	418.1489502	mg/l	1.6
Upstream	35	LCC23-RE-11-U	BOD	Biochemical Oxygen Demand	4/29/2023 7:10	5	5	418.1062993	mg/l	2
Upstream	35	LCC23-RE-11-U	E. coli	E. coli	4/29/2023 7:10	54750	54750	418.1062993	MPN/100 ml	100
Upstream	35	LCC23-RE-11-U	Inorganics	Hardness as calcium carbonate	4/29/2023 7:10	77	77	418.1062993	mg/l	15
Upstream	35	LCC23-RE-11-U	Inorganics	Nitrate Nitrite as N	4/29/2023 7:10	1.9	1.9	418.1062993	mg/l	0.04
Upstream	35	LCC23-RE-11-U	Inorganics	Total Kjeldahl Nitrogen	4/29/2023 7:10	2.1	2.1	418.1062993	mg/l	0.5
Upstream	35	LCC23-RE-11-U	Inorganics	Total Phosphorus as P	4/29/2023 7:10	0.21	0.21	418.1062993	mg/l	0.05
Upstream	35	LCC23-RE-11-U	Inorganics	Total Suspended Solids	4/29/2023 7:10	11	11	418.1062993	mg/l	1
Upstream	35	LCC23-RE-11-U	Metals	Copper	4/29/2023 7:10	3.1	3.1	418.1062993	ug/l	0.36
Upstream	35	LCC23-RE-11-U	Metals	Lead	4/29/2023 7:10	0.41	0.41	418.1062993	ug/l	0.071
Upstream	35	LCC23-RE-11-U	Metals	Zinc	4/29/2023 7:10	0	4	418.1062993	ug/l	4
Upstream	35	LCC23-RE-11-U	Oil & Grease	SGT-HEM (TPH)	4/29/2023 7:10	0	1.5	418.1062993	mg/l	1.5
Downstream	36	LCC23-RI-11-D	BOD	Biochemical Oxygen Demand	4/28/2023 9:30	0	2	394.6876773	mg/l	2
Downstream	36	LCC23-RI-11-D	E. coli	E. coli	4/28/2023 9:30	983	983	394.6876773	MPN/100 ml	10
Downstream	36	LCC23-RI-11-D	Inorganics	Hardness as calcium carbonate	4/28/2023 9:30	120	120	394.6876773	mg/l	15
Downstream	36	LCC23-RI-11-D	Inorganics	Nitrate Nitrite as N	4/28/2023 9:30	1.1	1.1	394.6876773	mg/l	0.04
Downstream	36	LCC23-RI-11-D	Inorganics	Total Kjeldahl Nitrogen	4/28/2023 9:30	0.9	0.9	394.6876773	mg/l	0.5
Downstream	36	LCC23-RI-11-D	Inorganics	Total Phosphorus as P	4/28/2023 9:30	0.064	0.064	394.6876773	mg/l	0.05
Downstream	36	LCC23-RI-11-D	Inorganics	Total Suspended Solids	4/28/2023 9:30	6.3	6.3	394.6876773	mg/l	1.3
Downstream	36	LCC23-RI-11-D	Metals	Copper	4/28/2023 9:30	0.77	0.77	394.6876773	ug/l	0.36
Downstream	36	LCC23-RI-11-D	Metals	Lead	4/28/2023 9:30	0.11	0.11	394.6876773	ug/l	0.071
Downstream	36	LCC23-RI-11-D	Metals	Zinc	4/28/2023 9:30	0	4	394.6876773	ug/l	4
Downstream	36	LCC23-RI-11-D	Oil & Grease	SGT-HEM (TPH)	4/28/2023 9:30	0	1.5	394.6876773	mg/l	1.5
Downstream	36	LCC23-P-11-D	BOD	Biochemical Oxygen Demand	4/28/2023 15:40	10	10	394.8342842	mg/l	2
Downstream	36	LCC23-P-11-D	E. coli	E. coli	4/28/2023 15:40	24196	24196	394.8342842	MPN/100 ml	10
Downstream	36	LCC23-P-11-D	Inorganics	Hardness as calcium carbonate	4/28/2023 15:40	110	110	394.8342842	mg/l	15
Downstream	36	LCC23-P-11-D	Inorganics	Nitrate Nitrite as N	4/28/2023 15:40	1.4	1.4	394.8342842	mg/l	0.04
Downstream	36	LCC23-P-11-D	Inorganics	Total Kjeldahl Nitrogen	4/28/2023 15:40	1.5	1.5	394.8342842	mg/l	0.5
Downstream	36	LCC23-P-11-D	Inorganics	Total Phosphorus as P	4/28/2023 15:40	0.34	0.34	394.8342842	mg/l	0.05
Downstream	36	LCC23-P-11-D	Inorganics	Total Suspended Solids	4/28/2023 15:40	28	28	394.8342842	mg/l	1
Downstream	36	LCC23-P-11-D	Metals	Copper	4/28/2023 15:40	3.7	3.7	394.8342842	ug/l	0.36
Downstream	36	LCC23-P-11-D	Metals	Lead	4/28/2023 15:40	1	1	394.8342842	ug/l	0.071
Downstream	36	LCC23-P-11-D	Metals	Zinc	4/28/2023 15:40	7.3	7.3	394.8342842	ug/l	4
Downstream	36	LCC23-P-11-D	Oil & Grease	SGT-HEM (TPH)	4/28/2023 15:40	2.4	2.4	394.8342842	mg/l	1.6
Downstream	36	LCC23-RE-11-D	BOD	Biochemical Oxygen Demand	4/29/2023 7:50	3.5	3.5	394.7805313	mg/l	2
Downstream	36	LCC23-RE-11-D	E. coli	E. coli	4/29/2023 7:50	24196	24196	394.7805313	MPN/100 ml	10
Downstream	36	LCC23-RE-11-D	Inorganics	Hardness as calcium carbonate	4/29/2023 7:50	110	110	394.7805313	mg/l	15
Downstream	36	LCC23-RE-11-D	Inorganics	Nitrate Nitrite as N	4/29/2023 7:50	1.9	1.9	394.7805313	mg/l	0.04
Downstream	36	LCC23-RE-11-D	Inorganics	Total Kjeldahl Nitrogen	4/29/2023 7:50	1.8	1.8	394.7805313	mg/l	0.5
Downstream	36	LCC23-RE-11-D	Inorganics	Total Phosphorus as P	4/29/2023 7:50	0.13	0.13	394.7805313	mg/l	0.05

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Downstream	36	LCC23-RE-11-D	Inorganics	Total Suspended Solids	4/29/2023 7:50	10	10	394.7805313	mg/l	1
Downstream	36	LCC23-RE-11-D	Metals	Copper	4/29/2023 7:50	3.8	3.8	394.7805313	ug/l	0.36
Downstream	36	LCC23-RE-11-D	Metals	Lead	4/29/2023 7:50	0.29	0.29	394.7805313	ug/l	0.071
Downstream	36	LCC23-RE-11-D	Metals	Zinc	4/29/2023 7:50	0	4	394.7805313	ug/l	4
Downstream	36	LCC23-RE-11-D	Oil & Grease	SGT-HEM (TPH)	4/29/2023 7:50	0	1.6	394.7805313	mg/l	1.6
Upstream	37	LCC23-RI-U-12	BOD	Biochemical Oxygen Demand	6/12/2023 12:45	5.9	5.9	417.8274279	mg/l	2
Upstream	37	LCC23-RI-U-12	E. coli	E. coli	6/12/2023 12:45	908	908	417.8274279	MPN/100 ml	10
Upstream	37	LCC23-RI-U-12	Inorganics	Hardness as calcium carbonate	6/12/2023 12:45	130	130	417.8274279	mg/l	15
Upstream	37	LCC23-RI-U-12	Inorganics	Nitrate Nitrite as N	6/12/2023 12:45	0.28	0.28	417.8274279	mg/l	0.04
Upstream	37	LCC23-RI-U-12	Inorganics	Total Kjeldahl Nitrogen	6/12/2023 12:45	1	1	417.8274279	mg/l	0.5
Upstream	37	LCC23-RI-U-12	Inorganics	Total Phosphorus as P	6/12/2023 12:45	0.13	0.13	417.8274279	mg/l	0.05
Upstream	37	LCC23-RI-U-12	Inorganics	Total Suspended Solids	6/12/2023 12:45	4.2	4.2	417.8274279	mg/l	1
Upstream	37	LCC23-RI-U-12	Metals	Copper	6/12/2023 12:45	0.86	0.86	417.8274279	ug/l	0.36
Upstream	37	LCC23-RI-U-12	Metals	Lead	6/12/2023 12:45	0.091	0.091	417.8274279	ug/l	0.071
Upstream	37	LCC23-RI-U-12	Metals	Zinc	6/12/2023 12:45	0	4	417.8274279	ug/l	4
Upstream	37	LCC23-RI-U-12	Oil & Grease	SGT-HEM (TPH)	6/12/2023 12:45	0	1.6	417.8274279	mg/l	1.6
Upstream	37	LCC23-P-U-12	BOD	Biochemical Oxygen Demand	6/12/2023 15:50	0	2	417.9192914	mg/l	2
Upstream	37	LCC23-P-U-12	E. coli	E. coli	6/12/2023 15:50	573	573	417.9192914	MPN/100 ml	10
Upstream	37	LCC23-P-U-12	Inorganics	Hardness as calcium carbonate	6/12/2023 15:50	130	130	417.9192914	mg/l	15
Upstream	37	LCC23-P-U-12	Inorganics	Nitrate Nitrite as N	6/12/2023 15:50	0.17	0.17	417.9192914	mg/l	0.04
Upstream	37	LCC23-P-U-12	Inorganics	Total Kjeldahl Nitrogen	6/12/2023 15:50	0.72	0.72	417.9192914	mg/l	0.5
Upstream	37	LCC23-P-U-12	Inorganics	Total Phosphorus as P	6/12/2023 15:50	0.18	0.18	417.9192914	mg/l	0.05
Upstream	37	LCC23-P-U-12	Inorganics	Total Suspended Solids	6/12/2023 15:50	14	14	417.9192914	mg/l	1
Upstream	37	LCC23-P-U-12	Metals	Copper	6/12/2023 15:50	0.65	0.65	417.9192914	ug/l	0.36
Upstream	37	LCC23-P-U-12	Metals	Lead	6/12/2023 15:50	0.08	0.08	417.9192914	ug/l	0.071
Upstream	37	LCC23-P-U-12	Metals	Zinc	6/12/2023 15:50	0	4	417.9192914	ug/l	4
Upstream	37	LCC23-P-U-12	Oil & Grease	SGT-HEM (TPH)	6/12/2023 15:50	0	1.6	417.9192914	mg/l	1.6
Upstream	37	LCC23-RE-U-12	BOD	Biochemical Oxygen Demand	6/12/2023 17:10	3.3	3.3	417.9750657	mg/l	2
Upstream	37	LCC23-RE-U-12	E. coli	E. coli	6/12/2023 17:10	8164	8164	417.9750657	MPN/100 ml	10
Upstream	37	LCC23-RE-U-12	Inorganics	Hardness as calcium carbonate	6/12/2023 17:10	92	92	417.9750657	mg/l	15
Upstream	37	LCC23-RE-U-12	Inorganics	Nitrate Nitrite as N	6/12/2023 17:10	0.37	0.37	417.9750657	mg/l	0.04
Upstream	37	LCC23-RE-U-12	Inorganics	Total Kjeldahl Nitrogen	6/12/2023 17:10	0.97	0.97	417.9750657	mg/l	0.5
Upstream	37	LCC23-RE-U-12	Inorganics	Total Phosphorus as P	6/12/2023 17:10	0.15	0.15	417.9750657	mg/l	0.05
Upstream	37	LCC23-RE-U-12	Inorganics	Total Suspended Solids	6/12/2023 17:10	11	11	417.9750657	mg/l	1
Upstream	37	LCC23-RE-U-12	Metals	Copper	6/12/2023 17:10	1.1	1.1	417.9750657	ug/l	0.36
Upstream	37	LCC23-RE-U-12	Metals	Lead	6/12/2023 17:10	0.24	0.24	417.9750657	ug/l	0.071
Upstream	37	LCC23-RE-U-12	Metals	Zinc	6/12/2023 17:10	0	4	417.9750657	ug/l	4
Upstream	37	LCC23-RE-U-12	Oil & Grease	SGT-HEM (TPH)	6/12/2023 17:10	2.4	2.4	417.9750657	mg/l	1.6
Downstream	38	LCC23-RI-D-12	BOD	Biochemical Oxygen Demand	6/12/2023 13:15	0	2	394.5706955	mg/l	2
Downstream	38	LCC23-RI-D-12	E. coli	E. coli	6/12/2023 13:15	1246	1246	394.5706955	MPN/100 ml	10
Downstream	38	LCC23-RI-D-12	Inorganics	Hardness as calcium carbonate	6/12/2023 13:15	110	110	394.5706955	mg/l	15
Downstream	38	LCC23-RI-D-12	Inorganics	Nitrate Nitrite as N	6/12/2023 13:15	0.43	0.43	394.5706955	mg/l	0.04
Downstream	38	LCC23-RI-D-12	Inorganics	Total Kjeldahl Nitrogen	6/12/2023 13:15	0.61	0.61	394.5706955	mg/l	0.5
Downstream	38	LCC23-RI-D-12	Inorganics	Total Phosphorus as P	6/12/2023 13:15	0.11	0.11	394.5706955	mg/l	0.05
Downstream	38	LCC23-RI-D-12	Inorganics	Total Suspended Solids	6/12/2023 13:15	55	55	394.5706955	mg/l	2
Downstream	38	LCC23-RI-D-12	Metals	Copper	6/12/2023 13:15	0.87	0.87	394.5706955	ug/l	0.36
Downstream	38	LCC23-RI-D-12	Metals	Lead	6/12/2023 13:15	0.2	0.2	394.5706955	ug/l	0.071
Downstream	38	LCC23-RI-D-12	Metals	Zinc	6/12/2023 13:15	0	4	394.5706955	ug/l	4
Downstream	38	LCC23-RI-D-12	Oil & Grease	SGT-HEM (TPH)	6/12/2023 13:15	0	1.5	394.5706955	mg/l	1.5
Downstream	38	LCC23-P-D-12	BOD	Biochemical Oxygen Demand	6/12/2023 16:15	0	2	394.6054166	mg/l	2
Downstream	38	LCC23-P-D-12	E. coli	E. coli	6/12/2023 16:15	11199	11199	394.6054166	MPN/100 ml	10

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Downstream	38	LCC23-P-D-12	Inorganics	Hardness as calcium carbonate	6/12/2023 16:15	110	110	394.6054166	mg/l	15
Downstream	38	LCC23-P-D-12	Inorganics	Nitrate Nitrite as N	6/12/2023 16:15	1.4	1.4	394.6054166	mg/l	0.04
Downstream	38	LCC23-P-D-12	Inorganics	Total Kjeldahl Nitrogen	6/12/2023 16:15	0.86	0.86	394.6054166	mg/l	0.5
Downstream	38	LCC23-P-D-12	Inorganics	Total Phosphorus as P	6/12/2023 16:15	0.11	0.11	394.6054166	mg/l	0.05
Downstream	38	LCC23-P-D-12	Inorganics	Total Suspended Solids	6/12/2023 16:15	7.5	7.5	394.6054166	mg/l	1
Downstream	38	LCC23-P-D-12	Metals	Copper	6/12/2023 16:15	1.2	1.2	394.6054166	ug/l	0.36
Downstream	38	LCC23-P-D-12	Metals	Lead	6/12/2023 16:15	0.15	0.15	394.6054166	ug/l	0.071
Downstream	38	LCC23-P-D-12	Metals	Zinc	6/12/2023 16:15	0	4	394.6054166	ug/l	4
Downstream	38	LCC23-P-D-12	Oil & Grease	SGT-HEM (TPH)	6/12/2023 16:15	0	1.6	394.6054166	mg/l	1.6
Downstream	38	LCC23-RE-D-12	BOD	Biochemical Oxygen Demand	6/12/2023 16:50	0	2	394.612061	mg/l	2
Downstream	38	LCC23-RE-D-12	E. coli	E. coli	6/12/2023 16:50	11199	11199	394.612061	MPN/100 ml	10
Downstream	38	LCC23-RE-D-12	Inorganics	Hardness as calcium carbonate	6/12/2023 16:50	140	140	394.612061	mg/l	15
Downstream	38	LCC23-RE-D-12	Inorganics	Nitrate Nitrite as N	6/12/2023 16:50	1.1	1.1	394.612061	mg/l	0.04
Downstream	38	LCC23-RE-D-12	Inorganics	Total Kjeldahl Nitrogen	6/12/2023 16:50	0.75	0.75	394.612061	mg/l	0.5
Downstream	38	LCC23-RE-D-12	Inorganics	Total Phosphorus as P	6/12/2023 16:50	0.16	0.16	394.612061	mg/l	0.05
Downstream	38	LCC23-RE-D-12	Inorganics	Total Suspended Solids	6/12/2023 16:50	5.5	5.5	394.612061	mg/l	1
Downstream	38	LCC23-RE-D-12	Metals	Copper	6/12/2023 16:50	1.5	1.5	394.612061	ug/l	0.36
Downstream	38	LCC23-RE-D-12	Metals	Lead	6/12/2023 16:50	0.57	0.57	394.612061	ug/l	0.071
Downstream	38	LCC23-RE-D-12	Metals	Zinc	6/12/2023 16:50	0	4	394.612061	ug/l	4
Downstream	38	LCC23-RE-D-12	Oil & Grease	SGT-HEM (TPH)	6/12/2023 16:50	1.9	1.9	394.612061	mg/l	1.7
Upstream	39	LCC23-BF03-U	BOD	Biochemical Oxygen Demand	6/30/2023 8:55	0	1.5	417.8733596	mg/l	1.5
Upstream	39	LCC23-BF03-U	E. coli	E. coli	6/30/2023 8:55	934	934	417.8733596	MPN/100 ml	10
Upstream	39	LCC23-BF03-U	Inorganics	Hardness as calcium carbonate	6/30/2023 8:55	99	99	417.8733596	mg/l	15
Upstream	39	LCC23-BF03-U	Inorganics	Nitrate Nitrite as N	6/30/2023 8:55	0.22	0.22	417.8733596	mg/l	0.04
Upstream	39	LCC23-BF03-U	Inorganics	Total Kjeldahl Nitrogen	6/30/2023 8:55	1.2	1.2	417.8733596	mg/l	0.5
Upstream	39	LCC23-BF03-U	Inorganics	Total Phosphorus as P	6/30/2023 8:55	0.061	0.061	417.8733596	mg/l	0.05
Upstream	39	LCC23-BF03-U	Inorganics	Total Suspended Solids	6/30/2023 8:55	3.4	3.4	417.8733596	mg/l	1
Upstream	39	LCC23-BF03-U	Metals	Copper	6/30/2023 8:55	0.56	0.56	417.8733596	ug/l	0.36
Upstream	39	LCC23-BF03-U	Metals	Lead	6/30/2023 8:55	0.15	0.15	417.8733596	ug/l	0.071
Upstream	39	LCC23-BF03-U	Metals	Zinc	6/30/2023 8:55	0	4	417.8733596	ug/l	4
Upstream	39	LCC23-BF03-U	Oil & Grease	SGT-HEM (TPH)	6/30/2023 8:55	0	1.5	417.8733596	mg/l	1.5
Downstream	40	LCC23-BF03-D	BOD	Biochemical Oxygen Demand	6/30/2023 9:45	0	1.5	394.5776574	mg/l	1.5
Downstream	40	LCC23-BF03-D	E. coli	E. coli	6/30/2023 9:45	842	842	394.5776574	MPN/100 ml	10
Downstream	40	LCC23-BF03-D	Inorganics	Hardness as calcium carbonate	6/30/2023 9:45	130	130	394.5776574	mg/l	15
Downstream	40	LCC23-BF03-D	Inorganics	Nitrate Nitrite as N	6/30/2023 9:45	0.46	0.46	394.5776574	mg/l	0.04
Downstream	40	LCC23-BF03-D	Inorganics	Total Kjeldahl Nitrogen	6/30/2023 9:45	0.81	0.81	394.5776574	mg/l	0.5
Downstream	40	LCC23-BF03-D	Inorganics	Total Phosphorus as P	6/30/2023 9:45	0	0.05	394.5776574	mg/l	0.05
Downstream	40	LCC23-BF03-D	Inorganics	Total Suspended Solids	6/30/2023 9:45	10	10	394.5776574	mg/l	1
Downstream	40	LCC23-BF03-D	Metals	Copper	6/30/2023 9:45	0.83	0.83	394.5776574	ug/l	0.36
Downstream	40	LCC23-BF03-D	Metals	Lead	6/30/2023 9:45	0.3	0.3	394.5776574	ug/l	0.071
Downstream	40	LCC23-BF03-D	Metals	Zinc	6/30/2023 9:45	0	4	394.5776574	ug/l	4
Downstream	40	LCC23-BF03-D	Oil & Grease	SGT-HEM (TPH)	6/30/2023 9:45	0	1.6	394.5776574	mg/l	1.6
Upstream	41	LCC23-RI-U-13	BOD	Biochemical Oxygen Demand	8/7/2023 18:20	0	20	418.6607612	mg/l	20
Upstream	41	LCC23-RI-U-13	E. coli	E. coli	8/7/2023 18:20	241960	241960	418.6607612	MPN/100 ml	100
Upstream	41	LCC23-RI-U-13	Inorganics	Hardness as calcium carbonate	8/7/2023 18:20	100	100	418.6607612	mg/l	15
Upstream	41	LCC23-RI-U-13	Inorganics	Nitrate Nitrite as N	8/7/2023 18:20	1.1	1.1	418.6607612	mg/l	0.04
Upstream	41	LCC23-RI-U-13	Inorganics	Total Kjeldahl Nitrogen	8/7/2023 18:20	5.1	5.1	418.6607612	mg/l	0.5
Upstream	41	LCC23-RI-U-13	Inorganics	Total Phosphorus as P	8/7/2023 18:20	0.9	0.9	418.6607612	mg/l	0.05
Upstream	41	LCC23-RI-U-13	Inorganics	Total Suspended Solids	8/7/2023 18:20	52	52	418.6607612	mg/l	4.5
Upstream	41	LCC23-RI-U-13	Metals	Copper	8/7/2023 18:20	6.4	6.4	418.6607612	ug/l	0.36
Upstream	41	LCC23-RI-U-13	Metals	Lead	8/7/2023 18:20	2.2	2.2	418.6607612	ug/l	0.12

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Upstream	41	LCC23-RI-U-13	Metals	Zinc	8/7/2023 18:20	16	16	418.6607612	ug/l	4
Upstream	41	LCC23-RI-U-13	Oil & Grease	SGT-HEM (TPH)	8/7/2023 18:20	0	1.7	418.6607612	mg/l	1.7
Upstream	41	LCC23-P-U-13	BOD	Biochemical Oxygen Demand	8/7/2023 19:50	20	20	418.5853019	mg/l	20
Upstream	41	LCC23-P-U-13	E. coli	E. coli	8/7/2023 19:50	101120	101120	418.5853019	MPN/100 ml	100
Upstream	41	LCC23-P-U-13	Inorganics	Hardness as calcium carbonate	8/7/2023 19:50	98	98	418.5853019	mg/l	15
Upstream	41	LCC23-P-U-13	Inorganics	Nitrate Nitrite as N	8/7/2023 19:50	1.3	1.3	418.5853019	mg/l	0.04
Upstream	41	LCC23-P-U-13	Inorganics	Total Kjeldahl Nitrogen	8/7/2023 19:50	6.7	6.7	418.5853019	mg/l	0.5
Upstream	41	LCC23-P-U-13	Inorganics	Total Phosphorus as P	8/7/2023 19:50	1.2	1.2	418.5853019	mg/l	0.05
Upstream	41	LCC23-P-U-13	Inorganics	Total Suspended Solids	8/7/2023 19:50	53	53	418.5853019	mg/l	5
Upstream	41	LCC23-P-U-13	Metals	Copper	8/7/2023 19:50	6.4	6.4	418.5853019	ug/l	0.36
Upstream	41	LCC23-P-U-13	Metals	Lead	8/7/2023 19:50	1.9	1.9	418.5853019	ug/l	0.12
Upstream	41	LCC23-P-U-13	Metals	Zinc	8/7/2023 19:50	16	16	418.5853019	ug/l	4
Upstream	41	LCC23-P-U-13	Oil & Grease	SGT-HEM (TPH)	8/7/2023 19:50	0	1.6	418.5853019	mg/l	1.6
Upstream	41	LCC23-RE-U-13	BOD	Biochemical Oxygen Demand	8/8/2023 7:15	0	20	418.1555119	mg/l	20
Upstream	41	LCC23-RE-U-13	E. coli	E. coli	8/8/2023 7:15	120330	120330	418.1555119	MPN/100 ml	100
Upstream	41	LCC23-RE-U-13	Inorganics	Hardness as calcium carbonate	8/8/2023 7:15	66	66	418.1555119	mg/l	15
Upstream	41	LCC23-RE-U-13	Inorganics	Nitrate Nitrite as N	8/8/2023 7:15	0.44	0.44	418.1555119	mg/l	0.04
Upstream	41	LCC23-RE-U-13	Inorganics	Total Kjeldahl Nitrogen	8/8/2023 7:15	2.1	2.1	418.1555119	mg/l	0.5
Upstream	41	LCC23-RE-U-13	Inorganics	Total Phosphorus as P	8/8/2023 7:15	0.55	0.55	418.1555119	mg/l	0.05
Upstream	41	LCC23-RE-U-13	Inorganics	Total Suspended Solids	8/8/2023 7:15	25	25	418.1555119	mg/l	3.3
Upstream	41	LCC23-RE-U-13	Metals	Copper	8/8/2023 7:15	2.9	2.9	418.1555119	ug/l	0.36
Upstream	41	LCC23-RE-U-13	Metals	Lead	8/8/2023 7:15	0.68	0.68	418.1555119	ug/l	0.12
Upstream	41	LCC23-RE-U-13	Metals	Zinc	8/8/2023 7:15	0	4	418.1555119	ug/l	4
Upstream	41	LCC23-RE-U-13	Oil & Grease	SGT-HEM (TPH)	8/8/2023 7:15	0	1.6	418.1555119	mg/l	1.6
Downstream	42	LCC23-RI-D-13	BOD	Biochemical Oxygen Demand	8/7/2023 18:50	0	20	394.5776456	mg/l	20
Downstream	42	LCC23-RI-D-13	E. coli	E. coli	8/7/2023 18:50	46110	46110	394.5776456	MPN/100 ml	100
Downstream	42	LCC23-RI-D-13	Inorganics	Hardness as calcium carbonate	8/7/2023 18:50	94	94	394.5776456	mg/l	15
Downstream	42	LCC23-RI-D-13	Inorganics	Nitrate Nitrite as N	8/7/2023 18:50	0.6	0.6	394.5776456	mg/l	0.04
Downstream	42	LCC23-RI-D-13	Inorganics	Total Kjeldahl Nitrogen	8/7/2023 18:50	1.6	1.6	394.5776456	mg/l	0.5
Downstream	42	LCC23-RI-D-13	Inorganics	Total Phosphorus as P	8/7/2023 18:50	0.12	0.12	394.5776456	mg/l	0.05
Downstream	42	LCC23-RI-D-13	Inorganics	Total Suspended Solids	8/7/2023 18:50	74	74	394.5776456	mg/l	3.3
Downstream	42	LCC23-RI-D-13	Metals	Copper	8/7/2023 18:50	4.1	4.1	394.5776456	ug/l	0.36
Downstream	42	LCC23-RI-D-13	Metals	Lead	8/7/2023 18:50	2	2	394.5776456	ug/l	0.12
Downstream	42	LCC23-RI-D-13	Metals	Zinc	8/7/2023 18:50	7.9	7.9	394.5776456	ug/l	4
Downstream	42	LCC23-RI-D-13	Oil & Grease	SGT-HEM (TPH)	8/7/2023 18:50	0	1.7	394.5776456	mg/l	1.7
Downstream	42	LCC23-P-D-13	BOD	Biochemical Oxygen Demand	8/7/2023 19:05	0	20	394.5824027	mg/l	20
Downstream	42	LCC23-P-D-13	E. coli	E. coli	8/7/2023 19:05	34480	34480	394.5824027	MPN/100 ml	100
Downstream	42	LCC23-P-D-13	Inorganics	Hardness as calcium carbonate	8/7/2023 19:05	130	130	394.5824027	mg/l	15
Downstream	42	LCC23-P-D-13	Inorganics	Nitrate Nitrite as N	8/7/2023 19:05	0.6	0.6	394.5824027	mg/l	0.04
Downstream	42	LCC23-P-D-13	Inorganics	Total Kjeldahl Nitrogen	8/7/2023 19:05	0.94	0.94	394.5824027	mg/l	0.5
Downstream	42	LCC23-P-D-13	Inorganics	Total Phosphorus as P	8/7/2023 19:05	0.14	0.14	394.5824027	mg/l	0.05
Downstream	42	LCC23-P-D-13	Inorganics	Total Suspended Solids	8/7/2023 19:05	51	51	394.5824027	mg/l	2.9
Downstream	42	LCC23-P-D-13	Metals	Copper	8/7/2023 19:05	3.2	3.2	394.5824027	ug/l	0.36
Downstream	42	LCC23-P-D-13	Metals	Lead	8/7/2023 19:05	1.3	1.3	394.5824027	ug/l	0.12
Downstream	42	LCC23-P-D-13	Metals	Zinc	8/7/2023 19:05	5.3	5.3	394.5824027	ug/l	4
Downstream	42	LCC23-P-D-13	Oil & Grease	SGT-HEM (TPH)	8/7/2023 19:05	0	1.6	394.5824027	mg/l	1.6
Downstream	42	LCC23-RE-D-13	BOD	Biochemical Oxygen Demand	8/8/2023 8:00	2.9	2.9	394.6416062	mg/l	2
Downstream	42	LCC23-RE-D-13	E. coli	E. coli	8/8/2023 8:00	31300	31300	394.6416062	MPN/100 ml	100
Downstream	42	LCC23-RE-D-13	Inorganics	Hardness as calcium carbonate	8/8/2023 8:00	170	170	394.6416062	mg/l	15
Downstream	42	LCC23-RE-D-13	Inorganics	Nitrate Nitrite as N	8/8/2023 8:00	0.19	0.19	394.6416062	mg/l	0.04
Downstream	42	LCC23-RE-D-13	Inorganics	Total Kjeldahl Nitrogen	8/8/2023 8:00	1.5	1.5	394.6416062	mg/l	0.5

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Downstream	42	LCC23-RE-D-13	Inorganics	Total Phosphorus as P	8/8/2023 8:00	0.36	0.36	394.6416062	mg/l	0.05
Downstream	42	LCC23-RE-D-13	Inorganics	Total Suspended Solids	8/8/2023 8:00	6.3	6.3	394.6416062	mg/l	1.3
Downstream	42	LCC23-RE-D-13	Metals	Copper	8/8/2023 8:00	3.5	3.5	394.6416062	ug/l	0.36
Downstream	42	LCC23-RE-D-13	Metals	Lead	8/8/2023 8:00	0.2	0.2	394.6416062	ug/l	0.12
Downstream	42	LCC23-RE-D-13	Metals	Zinc	8/8/2023 8:00	0	4	394.6416062	ug/l	4
Downstream	42	LCC23-RE-D-13	Oil & Grease	SGT-HEM (TPH)	8/8/2023 8:00	0	1.6	394.6416062	mg/l	1.6
Upstream	43	LCC23-RI-14-U	BOD	Biochemical Oxygen Demand	9/17/2023 8:00	5.3	5.3	417.6896326	mg/l	2
Upstream	43	LCC23-RI-14-U	E. coli	E. coli	9/17/2023 8:00	3370	3370	417.6896326	MPN/100 ml	100
Upstream	43	LCC23-RI-14-U	Inorganics	Hardness as calcium carbonate	9/17/2023 8:00	190	190	417.6896326	mg/l	30
Upstream	43	LCC23-RI-14-U	Inorganics	Nitrate Nitrite as N	9/17/2023 8:00	0.21	0.21	417.6896326	mg/l	0.04
Upstream	43	LCC23-RI-14-U	Inorganics	Total Kjeldahl Nitrogen	9/17/2023 8:00	2.6	2.6	417.6896326	mg/l	0.5
Upstream	43	LCC23-RI-14-U	Inorganics	Total Phosphorus as P	9/17/2023 8:00	0.34	0.34	417.6896326	mg/l	0.05
Upstream	43	LCC23-RI-14-U	Inorganics	Total Suspended Solids	9/17/2023 8:00	79	79	417.6896326	mg/l	2.5
Upstream	43	LCC23-RI-14-U	Metals	Copper	9/17/2023 8:00	2.6	2.6	417.6896326	ug/l	0.36
Upstream	43	LCC23-RI-14-U	Metals	Lead	9/17/2023 8:00	1.6	1.6	417.6896326	ug/l	0.12
Upstream	43	LCC23-RI-14-U	Metals	Zinc	9/17/2023 8:00	9.2	9.2	417.6896326	ug/l	4
Upstream	43	LCC23-RI-14-U	Oil & Grease	SGT-HEM (TPH)	9/17/2023 8:00	1.7	1.7	417.6896326	mg/l	1.6
Upstream	43	LCC23-P-14-U	BOD	Biochemical Oxygen Demand	9/17/2023 9:15	17	17	417.6929134	mg/l	2
Upstream	43	LCC23-P-14-U	E. coli	E. coli	9/17/2023 9:15	4350	4350	417.6929134	MPN/100 ml	100
Upstream	43	LCC23-P-14-U	Inorganics	Hardness as calcium carbonate	9/17/2023 9:15	200	200	417.6929134	mg/l	30
Upstream	43	LCC23-P-14-U	Inorganics	Nitrate Nitrite as N	9/17/2023 9:15	2.1	2.1	417.6929134	mg/l	0.04
Upstream	43	LCC23-P-14-U	Inorganics	Total Kjeldahl Nitrogen	9/17/2023 9:15	2.8	2.8	417.6929134	mg/l	0.5
Upstream	43	LCC23-P-14-U	Inorganics	Total Phosphorus as P	9/17/2023 9:15	0.37	0.37	417.6929134	mg/l	0.05
Upstream	43	LCC23-P-14-U	Inorganics	Total Suspended Solids	9/17/2023 9:15	22	22	417.6929134	mg/l	2.5
Upstream	43	LCC23-P-14-U	Metals	Copper	9/17/2023 9:15	2.6	2.6	417.6929134	ug/l	0.36
Upstream	43	LCC23-P-14-U	Metals	Lead	9/17/2023 9:15	1.5	1.5	417.6929134	ug/l	0.12
Upstream	43	LCC23-P-14-U	Metals	Zinc	9/17/2023 9:15	10	10	417.6929134	ug/l	4
Upstream	43	LCC23-P-14-U	Oil & Grease	SGT-HEM (TPH)	9/17/2023 9:15	0	1.5	417.6929134	mg/l	1.5
Upstream	43	LCC23-RE-14-U	BOD	Biochemical Oxygen Demand	9/17/2023 10:35	3.9	3.9	417.7125985	mg/l	2
Upstream	43	LCC23-RE-14-U	E. coli	E. coli	9/17/2023 10:35	4570	4570	417.7125985	MPN/100 ml	100
Upstream	43	LCC23-RE-14-U	Inorganics	Hardness as calcium carbonate	9/17/2023 10:35	170	170	417.7125985	mg/l	30
Upstream	43	LCC23-RE-14-U	Inorganics	Nitrate Nitrite as N	9/17/2023 10:35	0.12	0.12	417.7125985	mg/l	0.04
Upstream	43	LCC23-RE-14-U	Inorganics	Total Kjeldahl Nitrogen	9/17/2023 10:35	2.3	2.3	417.7125985	mg/l	0.5
Upstream	43	LCC23-RE-14-U	Inorganics	Total Phosphorus as P	9/17/2023 10:35	0.31	0.31	417.7125985	mg/l	0.05
Upstream	43	LCC23-RE-14-U	Inorganics	Total Suspended Solids	9/17/2023 10:35	75	75	417.7125985	mg/l	2.5
Upstream	43	LCC23-RE-14-U	Metals	Copper	9/17/2023 10:35	1.6	1.6	417.7125985	ug/l	0.36
Upstream	43	LCC23-RE-14-U	Metals	Lead	9/17/2023 10:35	0.54	0.54	417.7125985	ug/l	0.12
Upstream	43	LCC23-RE-14-U	Metals	Zinc	9/17/2023 10:35	7.2	7.2	417.7125985	ug/l	4
Upstream	43	LCC23-RE-14-U	Oil & Grease	SGT-HEM (TPH)	9/17/2023 10:35	0	1.5	417.7125985	mg/l	1.5
Downstream	44	LCC23-RI-14-D	BOD	Biochemical Oxygen Demand	9/17/2023 8:45	3.8	3.8	394.4640239	mg/l	2
Downstream	44	LCC23-RI-14-D	E. coli	E. coli	9/17/2023 8:45	4410	4410	394.4640239	MPN/100 ml	100
Downstream	44	LCC23-RI-14-D	Inorganics	Hardness as calcium carbonate	9/17/2023 8:45	200	200	394.4640239	mg/l	30
Downstream	44	LCC23-RI-14-D	Inorganics	Nitrate Nitrite as N	9/17/2023 8:45	0.15	0.15	394.4640239	mg/l	0.04
Downstream	44	LCC23-RI-14-D	Inorganics	Total Kjeldahl Nitrogen	9/17/2023 8:45	2.8	2.8	394.4640239	mg/l	0.5
Downstream	44	LCC23-RI-14-D	Inorganics	Total Phosphorus as P	9/17/2023 8:45	0.36	0.36	394.4640239	mg/l	0.05
Downstream	44	LCC23-RI-14-D	Inorganics	Total Suspended Solids	9/17/2023 8:45	54	54	394.4640239	mg/l	2.9
Downstream	44	LCC23-RI-14-D	Metals	Copper	9/17/2023 8:45	2.3	2.3	394.4640239	ug/l	0.36
Downstream	44	LCC23-RI-14-D	Metals	Lead	9/17/2023 8:45	1.1	1.1	394.4640239	ug/l	0.12
Downstream	44	LCC23-RI-14-D	Metals	Zinc	9/17/2023 8:45	11	11	394.4640239	ug/l	4
Downstream	44	LCC23-RI-14-D	Oil & Grease	SGT-HEM (TPH)	9/17/2023 8:45	0	1.5	394.4640239	mg/l	1.5
Downstream	44	LCC23-P-14-D	BOD	Biochemical Oxygen Demand	9/17/2023 9:55	3	3	394.4708942	mg/l	2

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Downstream	44	LCC23-P-14-D	E. coli	E. coli	9/17/2023 9:55	2720	2720	394.4708942	MPN/100 ml	100
Downstream	44	LCC23-P-14-D	Inorganics	Hardness as calcium carbonate	9/17/2023 9:55	170	170	394.4708942	mg/l	30
Downstream	44	LCC23-P-14-D	Inorganics	Nitrate Nitrite as N	9/17/2023 9:55	0.21	0.21	394.4708942	mg/l	0.04
Downstream	44	LCC23-P-14-D	Inorganics	Total Kjeldahl Nitrogen	9/17/2023 9:55	2.2	2.2	394.4708942	mg/l	0.5
Downstream	44	LCC23-P-14-D	Inorganics	Total Phosphorus as P	9/17/2023 9:55	0.33	0.33	394.4708942	mg/l	0.05
Downstream	44	LCC23-P-14-D	Inorganics	Total Suspended Solids	9/17/2023 9:55	73	73	394.4708942	mg/l	3.3
Downstream	44	LCC23-P-14-D	Metals	Copper	9/17/2023 9:55	2.4	2.4	394.4708942	ug/l	0.36
Downstream	44	LCC23-P-14-D	Metals	Lead	9/17/2023 9:55	1.2	1.2	394.4708942	ug/l	0.12
Downstream	44	LCC23-P-14-D	Metals	Zinc	9/17/2023 9:55	11	11	394.4708942	ug/l	4
Downstream	44	LCC23-P-14-D	Oil & Grease	SGT-HEM (TPH)	9/17/2023 9:55	0	1.5	394.4708942	mg/l	1.5
Downstream	44	LCC23-RE-14-D	BOD	Biochemical Oxygen Demand	9/17/2023 11:20	4.8	4.8	394.4784007	mg/l	2
Downstream	44	LCC23-RE-14-D	E. coli	E. coli	9/17/2023 11:20	2850	2850	394.4784007	MPN/100 ml	100
Downstream	44	LCC23-RE-14-D	Inorganics	Hardness as calcium carbonate	9/17/2023 11:20	170	170	394.4784007	mg/l	30
Downstream	44	LCC23-RE-14-D	Inorganics	Nitrate Nitrite as N	9/17/2023 11:20	0	0.04	394.4784007	mg/l	0.04
Downstream	44	LCC23-RE-14-D	Inorganics	Total Kjeldahl Nitrogen	9/17/2023 11:20	0.63	0.63	394.4784007	mg/l	0.5
Downstream	44	LCC23-RE-14-D	Inorganics	Total Phosphorus as P	9/17/2023 11:20	0.3	0.3	394.4784007	mg/l	0.05
Downstream	44	LCC23-RE-14-D	Inorganics	Total Suspended Solids	9/17/2023 11:20	80	80	394.4784007	mg/l	3.3
Downstream	44	LCC23-RE-14-D	Metals	Copper	9/17/2023 11:20	1.8	1.8	394.4784007	ug/l	0.36
Downstream	44	LCC23-RE-14-D	Metals	Lead	9/17/2023 11:20	0.73	0.73	394.4784007	ug/l	0.12
Downstream	44	LCC23-RE-14-D	Metals	Zinc	9/17/2023 11:20	8.3	8.3	394.4784007	ug/l	4
Downstream	44	LCC23-RE-14-D	Oil & Grease	SGT-HEM (TPH)	9/17/2023 11:20	0	1.5	394.4784007	mg/l	1.5
Upstream	45	LCC23-15-RI-U	BOD	Biochemical Oxygen Demand	9/23/2023 8:45	0	2	417.7749344	mg/l	2
Upstream	45	LCC23-15-RI-U	E. coli	E. coli	9/23/2023 8:45	2920	2920	417.7749344	MPN/100 ml	100
Upstream	45	LCC23-15-RI-U	Inorganics	Hardness as calcium carbonate	9/23/2023 8:45	180	180	417.7749344	mg/l	30
Upstream	45	LCC23-15-RI-U	Inorganics	Nitrate Nitrite as N	9/23/2023 8:45	0	0.04	417.7749344	mg/l	0.04
Upstream	45	LCC23-15-RI-U	Inorganics	Total Kjeldahl Nitrogen	9/23/2023 8:45	2.1	2.1	417.7749344	mg/l	0.5
Upstream	45	LCC23-15-RI-U	Inorganics	Total Phosphorus as P	9/23/2023 8:45	0.43	0.43	417.7749344	mg/l	0.05
Upstream	45	LCC23-15-RI-U	Inorganics	Total Suspended Solids	9/23/2023 8:45	25	25	417.7749344	mg/l	1
Upstream	45	LCC23-15-RI-U	Metals	Copper	9/23/2023 8:45	1.1	1.1	417.7749344	ug/l	0.36
Upstream	45	LCC23-15-RI-U	Metals	Lead	9/23/2023 8:45	0.93	0.93	417.7749344	ug/l	0.12
Upstream	45	LCC23-15-RI-U	Metals	Zinc	9/23/2023 8:45	4.2	4.2	417.7749344	ug/l	4
Upstream	45	LCC23-15-RI-U	Oil & Grease	SGT-HEM (TPH)	9/23/2023 8:45	0	1.5	417.7749344	mg/l	1.5
Upstream	45	LCC23-15-P-U	BOD	Biochemical Oxygen Demand	9/24/2023 12:50	8.2	8.2	418.4212599	mg/l	2
Upstream	45	LCC23-15-P-U	E. coli	E. coli	9/24/2023 12:50	241960	241960	418.4212599	MPN/100 ml	100
Upstream	45	LCC23-15-P-U	Inorganics	Hardness as calcium carbonate	9/24/2023 12:50	110	110	418.4212599	mg/l	30
Upstream	45	LCC23-15-P-U	Inorganics	Nitrate Nitrite as N	9/24/2023 12:50	0.48	0.48	418.4212599	mg/l	0.04
Upstream	45	LCC23-15-P-U	Inorganics	Total Kjeldahl Nitrogen	9/24/2023 12:50	3	3	418.4212599	mg/l	0.5
Upstream	45	LCC23-15-P-U	Inorganics	Total Phosphorus as P	9/24/2023 12:50	0.71	0.71	418.4212599	mg/l	0.05
Upstream	45	LCC23-15-P-U	Inorganics	Total Suspended Solids	9/24/2023 12:50	25	25	418.4212599	mg/l	2
Upstream	45	LCC23-15-P-U	Metals	Copper	9/24/2023 12:50	5	5	418.4212599	ug/l	0.36
Upstream	45	LCC23-15-P-U	Metals	Lead	9/24/2023 12:50	0.53	0.53	418.4212599	ug/l	0.12
Upstream	45	LCC23-15-P-U	Metals	Zinc	9/24/2023 12:50	11	11	418.4212599	ug/l	4
Upstream	45	LCC23-15-P-U	Oil & Grease	SGT-HEM (TPH)	9/24/2023 12:50	0	1.5	418.4212599	mg/l	1.5
Upstream	45	LCC23-15-RE-U	BOD	Biochemical Oxygen Demand	9/24/2023 15:10	5.3	5.3	418.3851707	mg/l	2
Upstream	45	LCC23-15-RE-U	E. coli	E. coli	9/24/2023 15:10	241960	241960	418.3851707	MPN/100 ml	100
Upstream	45	LCC23-15-RE-U	Inorganics	Hardness as calcium carbonate	9/24/2023 15:10	100	100	418.3851707	mg/l	30
Upstream	45	LCC23-15-RE-U	Inorganics	Nitrate Nitrite as N	9/24/2023 15:10	0.59	0.59	418.3851707	mg/l	0.04
Upstream	45	LCC23-15-RE-U	Inorganics	Total Kjeldahl Nitrogen	9/24/2023 15:10	3.1	3.1	418.3851707	mg/l	0.5
Upstream	45	LCC23-15-RE-U	Inorganics	Total Phosphorus as P	9/24/2023 15:10	0.6	0.6	418.3851707	mg/l	0.05
Upstream	45	LCC23-15-RE-U	Inorganics	Total Suspended Solids	9/24/2023 15:10	27	27	418.3851707	mg/l	2
Upstream	45	LCC23-15-RE-U	Metals	Copper	9/24/2023 15:10	6	6	418.3851707	ug/l	0.36

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Upstream	45	LCC23-15-RE-U	Metals	Lead	9/24/2023 15:10	1	1	418.3851707	ug/l	0.12
Upstream	45	LCC23-15-RE-U	Metals	Zinc	9/24/2023 15:10	15	15	418.3851707	ug/l	4
Upstream	45	LCC23-15-RE-U	Oil & Grease	SGT-HEM (TPH)	9/24/2023 15:10	0	1.5	418.3851707	mg/l	1.5
Downstream	46	LCC23-15-RI-D	BOD	Biochemical Oxygen Demand	9/23/2023 9:25	3.4	3.4	394.5092982	mg/l	2
Downstream	46	LCC23-15-RI-D	E. coli	E. coli	9/23/2023 9:25	9090	9090	394.5092982	MPN/100 ml	100
Downstream	46	LCC23-15-RI-D	Inorganics	Hardness as calcium carbonate	9/23/2023 9:25	140	140	394.5092982	mg/l	30
Downstream	46	LCC23-15-RI-D	Inorganics	Nitrate Nitrite as N	9/23/2023 9:25	0.55	0.55	394.5092982	mg/l	0.04
Downstream	46	LCC23-15-RI-D	Inorganics	Total Kjeldahl Nitrogen	9/23/2023 9:25	1.4	1.4	394.5092982	mg/l	0.5
Downstream	46	LCC23-15-RI-D	Inorganics	Total Phosphorus as P	9/23/2023 9:25	0.086	0.086	394.5092982	mg/l	0.05
Downstream	46	LCC23-15-RI-D	Inorganics	Total Suspended Solids	9/23/2023 9:25	74	74	394.5092982	mg/l	1
Downstream	46	LCC23-15-RI-D	Metals	Copper	9/23/2023 9:25	3.4	3.4	394.5092982	ug/l	0.36
Downstream	46	LCC23-15-RI-D	Metals	Lead	9/23/2023 9:25	1.4	1.4	394.5092982	ug/l	0.12
Downstream	46	LCC23-15-RI-D	Metals	Zinc	9/23/2023 9:25	9	9	394.5092982	ug/l	4
Downstream	46	LCC23-15-RI-D	Oil & Grease	SGT-HEM (TPH)	9/23/2023 9:25	0	1.6	394.5092982	mg/l	1.6
Downstream	46	LCC23-15-P-D	BOD	Biochemical Oxygen Demand	9/24/2023 13:15	0	2	394.7977543	mg/l	2
Downstream	46	LCC23-15-P-D	E. coli	E. coli	9/24/2023 13:15	81640	81640	394.7977543	MPN/100 ml	100
Downstream	46	LCC23-15-P-D	Inorganics	Hardness as calcium carbonate	9/24/2023 13:15	170	170	394.7977543	mg/l	30
Downstream	46	LCC23-15-P-D	Inorganics	Nitrate Nitrite as N	9/24/2023 13:15	0	0.04	394.7977543	mg/l	0.04
Downstream	46	LCC23-15-P-D	Inorganics	Total Kjeldahl Nitrogen	9/24/2023 13:15	1.6	1.6	394.7977543	mg/l	0.5
Downstream	46	LCC23-15-P-D	Inorganics	Total Phosphorus as P	9/24/2023 13:15	0.23	0.23	394.7977543	mg/l	0.05
Downstream	46	LCC23-15-P-D	Inorganics	Total Suspended Solids	9/24/2023 13:15	32	32	394.7977543	mg/l	1.8
Downstream	46	LCC23-15-P-D	Metals	Copper	9/24/2023 13:15	2.5	2.5	394.7977543	ug/l	0.36
Downstream	46	LCC23-15-P-D	Metals	Lead	9/24/2023 13:15	0.42	0.42	394.7977543	ug/l	0.12
Downstream	46	LCC23-15-P-D	Metals	Zinc	9/24/2023 13:15	4.9	4.9	394.7977543	ug/l	4
Downstream	46	LCC23-15-P-D	Oil & Grease	SGT-HEM (TPH)	9/24/2023 13:15	0	1.5	394.7977543	mg/l	1.5
Downstream	46	LCC23-15-RE-D	BOD	Biochemical Oxygen Demand	9/24/2023 15:50	0	2	394.7920174	mg/l	2
Downstream	46	LCC23-15-RE-D	E. coli	E. coli	9/24/2023 15:50	72700	72700	394.7920174	MPN/100 ml	100
Downstream	46	LCC23-15-RE-D	Inorganics	Hardness as calcium carbonate	9/24/2023 15:50	91	91	394.7920174	mg/l	30
Downstream	46	LCC23-15-RE-D	Inorganics	Nitrate Nitrite as N	9/24/2023 15:50	0	0.04	394.7920174	mg/l	0.04
Downstream	46	LCC23-15-RE-D	Inorganics	Total Kjeldahl Nitrogen	9/24/2023 15:50	1.6	1.6	394.7920174	mg/l	0.5
Downstream	46	LCC23-15-RE-D	Inorganics	Total Phosphorus as P	9/24/2023 15:50	0.18	0.18	394.7920174	mg/l	0.05
Downstream	46	LCC23-15-RE-D	Inorganics	Total Suspended Solids	9/24/2023 15:50	13	13	394.7920174	mg/l	1
Downstream	46	LCC23-15-RE-D	Metals	Copper	9/24/2023 15:50	2.6	2.6	394.7920174	ug/l	0.36
Downstream	46	LCC23-15-RE-D	Metals	Lead	9/24/2023 15:50	0.21	0.21	394.7920174	ug/l	0.12
Downstream	46	LCC23-15-RE-D	Metals	Zinc	9/24/2023 15:50	0	4	394.7920174	ug/l	4
Downstream	46	LCC23-15-RE-D	Oil & Grease	SGT-HEM (TPH)	9/24/2023 15:50	0	1.5	394.7920174	mg/l	1.5
Upstream	47	LCC23-RI-U-16	BOD	Biochemical Oxygen Demand	11/21/2023 10:45	2	2	417.8700788	mg/l	2
Upstream	47	LCC23-RI-U-16	E. coli	E. coli	11/21/2023 10:45	820	820	417.8700788	MPN/100 ml	100
Upstream	47	LCC23-RI-U-16	Inorganics	Hardness as calcium carbonate	11/21/2023 10:45	180	180	417.8700788	mg/l	30
Upstream	47	LCC23-RI-U-16	Inorganics	Nitrate Nitrite as N	11/21/2023 10:45	0	0.04	417.8700788	mg/l	0.04
Upstream	47	LCC23-RI-U-16	Inorganics	Total Kjeldahl Nitrogen	11/21/2023 10:45	1.5	1.5	417.8700788	mg/l	0.5
Upstream	47	LCC23-RI-U-16	Inorganics	Total Phosphorus as P	11/21/2023 10:45	0.26	0.26	417.8700788	mg/l	0.05
Upstream	47	LCC23-RI-U-16	Inorganics	Total Suspended Solids	11/21/2023 10:45	23	23	417.8700788	mg/l	1
Upstream	47	LCC23-RI-U-16	Metals	Copper	11/21/2023 10:45	0.8	0.8	417.8700788	ug/l	0.36
Upstream	47	LCC23-RI-U-16	Metals	Lead	11/21/2023 10:45	0.44	0.44	417.8700788	ug/l	0.12
Upstream	47	LCC23-RI-U-16	Metals	Zinc	11/21/2023 10:45	0	4	417.8700788	ug/l	4
Upstream	47	LCC23-RI-U-16	Oil & Grease	SGT-HEM (TPH)	11/21/2023 10:45	0	1.6	417.8700788	mg/l	1.6
Upstream	47	LCC23-P-U-16	BOD	Biochemical Oxygen Demand	11/21/2023 15:30	0	2	418.0209974	mg/l	2
Upstream	47	LCC23-P-U-16	E. coli	E. coli	11/21/2023 15:30	0	100	418.0209974	MPN/100 ml	100
Upstream	47	LCC23-P-U-16	Inorganics	Hardness as calcium carbonate	11/21/2023 15:30	130	130	418.0209974	mg/l	30
Upstream	47	LCC23-P-U-16	Inorganics	Nitrate Nitrite as N	11/21/2023 15:30	0.09	0.09	418.0209974	mg/l	0.04

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Upstream	47	LCC23-P-U-16	Inorganics	Total Kjeldahl Nitrogen	11/21/2023 15:30	3.9	3.9	418.0209974	mg/l	0.5
Upstream	47	LCC23-P-U-16	Inorganics	Total Phosphorus as P	11/21/2023 15:30	0.27	0.27	418.0209974	mg/l	0.05
Upstream	47	LCC23-P-U-16	Inorganics	Total Suspended Solids	11/21/2023 15:30	9.6	9.6	418.0209974	mg/l	1
Upstream	47	LCC23-P-U-16	Metals	Copper	11/21/2023 15:30	0.58	0.58	418.0209974	ug/l	0.36
Upstream	47	LCC23-P-U-16	Metals	Lead	11/21/2023 15:30	0.17	0.17	418.0209974	ug/l	0.12
Upstream	47	LCC23-P-U-16	Metals	Zinc	11/21/2023 15:30	0	4	418.0209974	ug/l	4
Upstream	47	LCC23-P-U-16	Oil & Grease	SGT-HEM (TPH)	11/21/2023 15:30	0	1.5	418.0209974	mg/l	1.5
Upstream	47	LCC23-RE-U-16	BOD	Biochemical Oxygen Demand	11/22/2023 9:25	32	32	418.3097114	mg/l	2
Upstream	47	LCC23-RE-U-16	E. coli	E. coli	11/22/2023 9:25	57940	57940	418.3097114	MPN/100 ml	100
Upstream	47	LCC23-RE-U-16	Inorganics	Hardness as calcium carbonate	11/22/2023 9:25	170	170	418.3097114	mg/l	30
Upstream	47	LCC23-RE-U-16	Inorganics	Nitrate Nitrite as N	11/22/2023 9:25	2.9	2.9	418.3097114	mg/l	0.04
Upstream	47	LCC23-RE-U-16	Inorganics	Total Kjeldahl Nitrogen	11/22/2023 9:25	2.8	2.8	418.3097114	mg/l	0.5
Upstream	47	LCC23-RE-U-16	Inorganics	Total Phosphorus as P	11/22/2023 9:25	0.9	0.9	418.3097114	mg/l	0.05
Upstream	47	LCC23-RE-U-16	Inorganics	Total Suspended Solids	11/22/2023 9:25	26	26	418.3097114	mg/l	2
Upstream	47	LCC23-RE-U-16	Metals	Copper	11/22/2023 9:25	4.7	4.7	418.3097114	ug/l	0.36
Upstream	47	LCC23-RE-U-16	Metals	Lead	11/22/2023 9:25	0.75	0.75	418.3097114	ug/l	0.12
Upstream	47	LCC23-RE-U-16	Metals	Zinc	11/22/2023 9:25	6.7	6.7	418.3097114	ug/l	4
Upstream	47	LCC23-RE-U-16	Oil & Grease	SGT-HEM (TPH)	11/22/2023 9:25	0	1.5	418.3097114	mg/l	1.5
Downstream	48	LCC23-RI-D-16	BOD	Biochemical Oxygen Demand	11/21/2023 11:10	0	2	394.5950622	mg/l	2
Downstream	48	LCC23-RI-D-16	E. coli	E. coli	11/21/2023 11:10	310	310	394.5950622	MPN/100 ml	100
Downstream	48	LCC23-RI-D-16	Inorganics	Hardness as calcium carbonate	11/21/2023 11:10	160	160	394.5950622	mg/l	30
Downstream	48	LCC23-RI-D-16	Inorganics	Nitrate Nitrite as N	11/21/2023 11:10	0.58	0.58	394.5950622	mg/l	0.04
Downstream	48	LCC23-RI-D-16	Inorganics	Total Kjeldahl Nitrogen	11/21/2023 11:10	0.67	0.67	394.5950622	mg/l	0.5
Downstream	48	LCC23-RI-D-16	Inorganics	Total Phosphorus as P	11/21/2023 11:10	0	0.05	394.5950622	mg/l	0.05
Downstream	48	LCC23-RI-D-16	Inorganics	Total Suspended Solids	11/21/2023 11:10	15	15	394.5950622	mg/l	1
Downstream	48	LCC23-RI-D-16	Metals	Copper	11/21/2023 11:10	2.4	2.4	394.5950622	ug/l	0.36
Downstream	48	LCC23-RI-D-16	Metals	Lead	11/21/2023 11:10	1.5	1.5	394.5950622	ug/l	0.12
Downstream	48	LCC23-RI-D-16	Metals	Zinc	11/21/2023 11:10	6.4	6.4	394.5950622	ug/l	4
Downstream	48	LCC23-RI-D-16	Oil & Grease	SGT-HEM (TPH)	11/21/2023 11:10	5.7	5.7	394.5950622	mg/l	1.6
Downstream	48	LCC23-P-D-16	BOD	Biochemical Oxygen Demand	11/21/2023 16:00	0	2	394.6681911	mg/l	2
Downstream	48	LCC23-P-D-16	E. coli	E. coli	11/21/2023 16:00	1610	1610	394.6681911	MPN/100 ml	100
Downstream	48	LCC23-P-D-16	Inorganics	Hardness as calcium carbonate	11/21/2023 16:00	150	150	394.6681911	mg/l	30
Downstream	48	LCC23-P-D-16	Inorganics	Nitrate Nitrite as N	11/21/2023 16:00	0.46	0.46	394.6681911	mg/l	0.04
Downstream	48	LCC23-P-D-16	Inorganics	Total Kjeldahl Nitrogen	11/21/2023 16:00	0.91	0.91	394.6681911	mg/l	0.5
Downstream	48	LCC23-P-D-16	Inorganics	Total Phosphorus as P	11/21/2023 16:00	0.19	0.19	394.6681911	mg/l	0.05
Downstream	48	LCC23-P-D-16	Inorganics	Total Suspended Solids	11/21/2023 16:00	38	38	394.6681911	mg/l	1
Downstream	48	LCC23-P-D-16	Metals	Copper	11/21/2023 16:00	0.64	0.64	394.6681911	ug/l	0.36
Downstream	48	LCC23-P-D-16	Metals	Lead	11/21/2023 16:00	0.26	0.26	394.6681911	ug/l	0.12
Downstream	48	LCC23-P-D-16	Metals	Zinc	11/21/2023 16:00	0	4	394.6681911	ug/l	4
Downstream	48	LCC23-P-D-16	Oil & Grease	SGT-HEM (TPH)	11/21/2023 16:00	0	1.5	394.6681911	mg/l	1.5
Downstream	48	LCC23-RE-D-16	BOD	Biochemical Oxygen Demand	11/22/2023 9:55	8.7	8.7	394.9013377	mg/l	2
Downstream	48	LCC23-RE-D-16	E. coli	E. coli	11/22/2023 9:55	64880	64880	394.9013377	MPN/100 ml	100
Downstream	48	LCC23-RE-D-16	Inorganics	Hardness as calcium carbonate	11/22/2023 9:55	99	99	394.9013377	mg/l	30
Downstream	48	LCC23-RE-D-16	Inorganics	Nitrate Nitrite as N	11/22/2023 9:55	2.5	2.5	394.9013377	mg/l	0.04
Downstream	48	LCC23-RE-D-16	Inorganics	Total Kjeldahl Nitrogen	11/22/2023 9:55	2.4	2.4	394.9013377	mg/l	0.5
Downstream	48	LCC23-RE-D-16	Inorganics	Total Phosphorus as P	11/22/2023 9:55	0.41	0.41	394.9013377	mg/l	0.05
Downstream	48	LCC23-RE-D-16	Inorganics	Total Suspended Solids	11/22/2023 9:55	2	2	394.9013377	mg/l	1
Downstream	48	LCC23-RE-D-16	Metals	Copper	11/22/2023 9:55	4	4	394.9013377	ug/l	0.36
Downstream	48	LCC23-RE-D-16	Metals	Lead	11/22/2023 9:55	0.36	0.36	394.9013377	ug/l	0.12
Downstream	48	LCC23-RE-D-16	Metals	Zinc	11/22/2023 9:55	0	4	394.9013377	ug/l	4
Downstream	48	LCC23-RE-D-16	Oil & Grease	SGT-HEM (TPH)	11/22/2023 9:55	0	1.6	394.9013377	mg/l	1.6

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Upstream	49	LCC23-RI-17-US	BOD	Biochemical Oxygen Demand	12/10/2023 10:30	5	5	417.8175854	mg/l	2
Upstream	49	LCC23-RI-17-US	E. coli	E. coli	12/10/2023 10:30	0	100	417.8175854	MPN/100 ml	100
Upstream	49	LCC23-RI-17-US	Inorganics	Hardness as calcium carbonate	12/10/2023 10:30	190	190	417.8175854	mg/l	15
Upstream	49	LCC23-RI-17-US	Inorganics	Nitrate Nitrite as N	12/10/2023 10:30	0.86	0.86	417.8175854	mg/l	0.04
Upstream	49	LCC23-RI-17-US	Inorganics	Total Kjeldahl Nitrogen	12/10/2023 10:30	1.5	1.5	417.8175854	mg/l	0.5
Upstream	49	LCC23-RI-17-US	Inorganics	Total Phosphorus as P	12/10/2023 10:30	0.08	0.08	417.8175854	mg/l	0.05
Upstream	49	LCC23-RI-17-US	Inorganics	Total Suspended Solids	12/10/2023 10:30	1.8	1.8	417.8175854	mg/l	1
Upstream	49	LCC23-RI-17-US	Metals	Copper	12/10/2023 10:30	0.6	0.6	417.8175854	ug/l	0.36
Upstream	49	LCC23-RI-17-US	Metals	Lead	12/10/2023 10:30	0	0.12	417.8175854	ug/l	0.12
Upstream	49	LCC23-RI-17-US	Metals	Zinc	12/10/2023 10:30	0	4	417.8175854	ug/l	4
Upstream	49	LCC23-RI-17-US	Oil & Grease	SGT-HEM (TPH)	12/10/2023 10:30	0	1.6	417.8175854	mg/l	1.6
Upstream	49	LCC23-P-17-US	BOD	Biochemical Oxygen Demand	12/11/2023 8:00	8.4	8.4	418.5590552	mg/l	2
Upstream	49	LCC23-P-17-US	E. coli	E. coli	12/11/2023 8:00	24196	24196	418.5590552	MPN/100 ml	10
Upstream	49	LCC23-P-17-US	Inorganics	Hardness as calcium carbonate	12/11/2023 8:00	100	100	418.5590552	mg/l	15
Upstream	49	LCC23-P-17-US	Inorganics	Nitrate Nitrite as N	12/11/2023 8:00	2	2	418.5590552	mg/l	0.04
Upstream	49	LCC23-P-17-US	Inorganics	Total Kjeldahl Nitrogen	12/11/2023 8:00	10	10	418.5590552	mg/l	2.5
Upstream	49	LCC23-P-17-US	Inorganics	Total Phosphorus as P	12/11/2023 8:00	0.36	0.36	418.5590552	mg/l	0.05
Upstream	49	LCC23-P-17-US	Inorganics	Total Suspended Solids	12/11/2023 8:00	15	15	418.5590552	mg/l	1.4
Upstream	49	LCC23-P-17-US	Metals	Copper	12/11/2023 8:00	4.5	4.5	418.5590552	ug/l	0.36
Upstream	49	LCC23-P-17-US	Metals	Lead	12/11/2023 8:00	0.6	0.6	418.5590552	ug/l	0.12
Upstream	49	LCC23-P-17-US	Metals	Zinc	12/11/2023 8:00	6.2	6.2	418.5590552	ug/l	4
Upstream	49	LCC23-P-17-US	Oil & Grease	SGT-HEM (TPH)	12/11/2023 8:00	0	1.6	418.5590552	mg/l	1.6
Upstream	49	LCC23-RE-17-US	BOD	Biochemical Oxygen Demand	12/11/2023 11:00	13	13	418.4048557	mg/l	2
Upstream	49	LCC23-RE-17-US	E. coli	E. coli	12/11/2023 11:00	17329	17329	418.4048557	MPN/100 ml	10
Upstream	49	LCC23-RE-17-US	Inorganics	Hardness as calcium carbonate	12/11/2023 11:00	110	110	418.4048557	mg/l	15
Upstream	49	LCC23-RE-17-US	Inorganics	Nitrate Nitrite as N	12/11/2023 11:00	2.2	2.2	418.4048557	mg/l	0.04
Upstream	49	LCC23-RE-17-US	Inorganics	Total Kjeldahl Nitrogen	12/11/2023 11:00	3.4	3.4	418.4048557	mg/l	0.5
Upstream	49	LCC23-RE-17-US	Inorganics	Total Phosphorus as P	12/11/2023 11:00	0.3	0.3	418.4048557	mg/l	0.05
Upstream	49	LCC23-RE-17-US	Inorganics	Total Suspended Solids	12/11/2023 11:00	11	11	418.4048557	mg/l	1
Upstream	49	LCC23-RE-17-US	Metals	Copper	12/11/2023 11:00	4.6	4.6	418.4048557	ug/l	0.36
Upstream	49	LCC23-RE-17-US	Metals	Lead	12/11/2023 11:00	0.53	0.53	418.4048557	ug/l	0.12
Upstream	49	LCC23-RE-17-US	Metals	Zinc	12/11/2023 11:00	5.8	5.8	418.4048557	ug/l	4
Upstream	49	LCC23-RE-17-US	Oil & Grease	SGT-HEM (TPH)	12/11/2023 11:00	0	1.5	418.4048557	mg/l	1.5
Downstream	50	LCC23-RI-17-DS	BOD	Biochemical Oxygen Demand	12/10/2023 11:00	0	2	394.5936966	mg/l	2
Downstream	50	LCC23-RI-17-DS	E. coli	E. coli	12/10/2023 11:00	520	520	394.5936966	MPN/100 ml	100
Downstream	50	LCC23-RI-17-DS	Inorganics	Hardness as calcium carbonate	12/10/2023 11:00	190	190	394.5936966	mg/l	15
Downstream	50	LCC23-RI-17-DS	Inorganics	Nitrate Nitrite as N	12/10/2023 11:00	0.83	0.83	394.5936966	mg/l	0.04
Downstream	50	LCC23-RI-17-DS	Inorganics	Total Kjeldahl Nitrogen	12/10/2023 11:00	0.93	0.93	394.5936966	mg/l	0.5
Downstream	50	LCC23-RI-17-DS	Inorganics	Total Phosphorus as P	12/10/2023 11:00	0	0.05	394.5936966	mg/l	0.05
Downstream	50	LCC23-RI-17-DS	Inorganics	Total Suspended Solids	12/10/2023 11:00	1.3	1.3	394.5936966	mg/l	1
Downstream	50	LCC23-RI-17-DS	Metals	Copper	12/10/2023 11:00	0.54	0.54	394.5936966	ug/l	0.36
Downstream	50	LCC23-RI-17-DS	Metals	Lead	12/10/2023 11:00	0	0.12	394.5936966	ug/l	0.12
Downstream	50	LCC23-RI-17-DS	Metals	Zinc	12/10/2023 11:00	0	4	394.5936966	ug/l	4
Downstream	50	LCC23-RI-17-DS	Oil & Grease	SGT-HEM (TPH)	12/10/2023 11:00	0	1.5	394.5936966	mg/l	1.5
Downstream	50	LCC23-P-17-DS	BOD	Biochemical Oxygen Demand	12/11/2023 8:30	4.5	4.5	395.0675574	mg/l	2
Downstream	50	LCC23-P-17-DS	E. coli	E. coli	12/11/2023 8:30	17329	17329	395.0675574	MPN/100 ml	10
Downstream	50	LCC23-P-17-DS	Inorganics	Hardness as calcium carbonate	12/11/2023 8:30	110	110	395.0675574	mg/l	15
Downstream	50	LCC23-P-17-DS	Inorganics	Nitrate Nitrite as N	12/11/2023 8:30	1.9	1.9	395.0675574	mg/l	0.04
Downstream	50	LCC23-P-17-DS	Inorganics	Total Kjeldahl Nitrogen	12/11/2023 8:30	2.4	2.4	395.0675574	mg/l	0.5
Downstream	50	LCC23-P-17-DS	Inorganics	Total Phosphorus as P	12/11/2023 8:30	0.38	0.38	395.0675574	mg/l	0.05
Downstream	50	LCC23-P-17-DS	Inorganics	Total Suspended Solids	12/11/2023 8:30	10	10	395.0675574	mg/l	1

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Downstream	50	LCC23-P-17-DS	Metals	Copper	12/11/2023 8:30	4.8	4.8	395.0675574	ug/l	0.36
Downstream	50	LCC23-P-17-DS	Metals	Lead	12/11/2023 8:30	0.5	0.5	395.0675574	ug/l	0.12
Downstream	50	LCC23-P-17-DS	Metals	Zinc	12/11/2023 8:30	5.6	5.6	395.0675574	ug/l	4
Downstream	50	LCC23-P-17-DS	Oil & Grease	SGT-HEM (TPH)	12/11/2023 8:30	0	1.5	395.0675574	mg/l	1.5
Downstream	50	LCC23-RE-17-DS	BOD	Biochemical Oxygen Demand	12/11/2023 12:00	3.5	3.5	394.9337855	mg/l	2
Downstream	50	LCC23-RE-17-DS	E. coli	E. coli	12/11/2023 12:00	15531	15531	394.9337855	MPN/100 ml	10
Downstream	50	LCC23-RE-17-DS	Inorganics	Hardness as calcium carbonate	12/11/2023 12:00	110	110	394.9337855	mg/l	15
Downstream	50	LCC23-RE-17-DS	Inorganics	Nitrate Nitrite as N	12/11/2023 12:00	2.1	2.1	394.9337855	mg/l	0.04
Downstream	50	LCC23-RE-17-DS	Inorganics	Total Kjeldahl Nitrogen	12/11/2023 12:00	1.4	1.4	394.9337855	mg/l	0.5
Downstream	50	LCC23-RE-17-DS	Inorganics	Total Phosphorus as P	12/11/2023 12:00	0.3	0.3	394.9337855	mg/l	0.05
Downstream	50	LCC23-RE-17-DS	Inorganics	Total Suspended Solids	12/11/2023 12:00	8.3	8.3	394.9337855	mg/l	1
Downstream	50	LCC23-RE-17-DS	Metals	Copper	12/11/2023 12:00	4.3	4.3	394.9337855	ug/l	0.36
Downstream	50	LCC23-RE-17-DS	Metals	Lead	12/11/2023 12:00	0.4	0.4	394.9337855	ug/l	0.12
Downstream	50	LCC23-RE-17-DS	Metals	Zinc	12/11/2023 12:00	0	4	394.9337855	ug/l	4
Downstream	50	LCC23-RE-17-DS	Oil & Grease	SGT-HEM (TPH)	12/11/2023 12:00	0	1.6	394.9337855	mg/l	1.6
Upstream	51	LCC23-RI-18-U	BOD	Biochemical Oxygen Demand	12/17/2023 16:00	0	2	417.8339896	mg/l	2
Upstream	51	LCC23-RI-18-U	E. coli	E. coli	12/17/2023 16:00	0	100	417.8339896	MPN/100 ml	100
Upstream	51	LCC23-RI-18-U	Inorganics	Hardness as calcium carbonate	12/17/2023 16:00	170	170	417.8339896	mg/l	30
Upstream	51	LCC23-RI-18-U	Inorganics	Nitrate Nitrite as N	12/17/2023 16:00	1.8	1.8	417.8339896	mg/l	0.04
Upstream	51	LCC23-RI-18-U	Inorganics	Total Kjeldahl Nitrogen	12/17/2023 16:00	0.92	0.92	417.8339896	mg/l	0.5
Upstream	51	LCC23-RI-18-U	Inorganics	Total Phosphorus as P	12/17/2023 16:00	0.082	0.082	417.8339896	mg/l	0.05
Upstream	51	LCC23-RI-18-U	Inorganics	Total Suspended Solids	12/17/2023 16:00	3.8	3.8	417.8339896	mg/l	1
Upstream	51	LCC23-RI-18-U	Metals	Copper	12/17/2023 16:00	0.71	0.71	417.8339896	ug/l	0.36
Upstream	51	LCC23-RI-18-U	Metals	Lead	12/17/2023 16:00	0	0.12	417.8339896	ug/l	0.12
Upstream	51	LCC23-RI-18-U	Metals	Zinc	12/17/2023 16:00	0	4	417.8339896	ug/l	4
Upstream	51	LCC23-RI-18-U	Oil & Grease	SGT-HEM (TPH)	12/17/2023 16:00	0	1.6	417.8339896	mg/l	1.6
Upstream	51	LCC23-P-18-U	BOD	Biochemical Oxygen Demand	12/18/2023 7:20	5.6	5.6	418.8674542	mg/l	2
Upstream	51	LCC23-P-18-U	E. coli	E. coli	12/18/2023 7:20	18500	18500	418.8674542	MPN/100 ml	100
Upstream	51	LCC23-P-18-U	Inorganics	Hardness as calcium carbonate	12/18/2023 7:20	78	78	418.8674542	mg/l	15
Upstream	51	LCC23-P-18-U	Inorganics	Nitrate Nitrite as N	12/18/2023 7:20	1.7	1.7	418.8674542	mg/l	0.04
Upstream	51	LCC23-P-18-U	Inorganics	Total Kjeldahl Nitrogen	12/18/2023 7:20	4.8	4.8	418.8674542	mg/l	0.5
Upstream	51	LCC23-P-18-U	Inorganics	Total Phosphorus as P	12/18/2023 7:20	0.5	0.5	418.8674542	mg/l	0.05
Upstream	51	LCC23-P-18-U	Inorganics	Total Suspended Solids	12/18/2023 7:20	34	34	418.8674542	mg/l	2
Upstream	51	LCC23-P-18-U	Metals	Copper	12/18/2023 7:20	6.5	6.5	418.8674542	ug/l	0.36
Upstream	51	LCC23-P-18-U	Metals	Lead	12/18/2023 7:20	1.6	1.6	418.8674542	ug/l	0.12
Upstream	51	LCC23-P-18-U	Metals	Zinc	12/18/2023 7:20	11	11	418.8674542	ug/l	4
Upstream	51	LCC23-P-18-U	Oil & Grease	SGT-HEM (TPH)	12/18/2023 7:20	1.6	1.6	418.8674542	mg/l	1.5
Upstream	51	LCC23-RE-18-U	BOD	Biochemical Oxygen Demand	12/18/2023 9:05	7.4	7.4	418.7493439	mg/l	2
Upstream	51	LCC23-RE-18-U	E. coli	E. coli	12/18/2023 9:05	9580	9580	418.7493439	MPN/100 ml	100
Upstream	51	LCC23-RE-18-U	Inorganics	Hardness as calcium carbonate	12/18/2023 9:05	60	60	418.7493439	mg/l	15
Upstream	51	LCC23-RE-18-U	Inorganics	Nitrate Nitrite as N	12/18/2023 9:05	1.7	1.7	418.7493439	mg/l	0.04
Upstream	51	LCC23-RE-18-U	Inorganics	Total Kjeldahl Nitrogen	12/18/2023 9:05	1.5	1.5	418.7493439	mg/l	0.5
Upstream	51	LCC23-RE-18-U	Inorganics	Total Phosphorus as P	12/18/2023 9:05	0.4	0.4	418.7493439	mg/l	0.05
Upstream	51	LCC23-RE-18-U	Inorganics	Total Suspended Solids	12/18/2023 9:05	15	15	418.7493439	mg/l	2
Upstream	51	LCC23-RE-18-U	Metals	Copper	12/18/2023 9:05	5	5	418.7493439	ug/l	0.36
Upstream	51	LCC23-RE-18-U	Metals	Lead	12/18/2023 9:05	0.96	0.96	418.7493439	ug/l	0.12
Upstream	51	LCC23-RE-18-U	Metals	Zinc	12/18/2023 9:05	6.6	6.6	418.7493439	ug/l	4
Upstream	51	LCC23-RE-18-U	Oil & Grease	SGT-HEM (TPH)	12/18/2023 9:05	0	1.5	418.7493439	mg/l	1.5
Downstream	52	LCC23-RI-18-D	BOD	Biochemical Oxygen Demand	12/17/2023 16:40	0	2	394.5812381	mg/l	2
Downstream	52	LCC23-RI-18-D	E. coli	E. coli	12/17/2023 16:40	0	100	394.5812381	MPN/100 ml	100
Downstream	52	LCC23-RI-18-D	Inorganics	Hardness as calcium carbonate	12/17/2023 16:40	170	170	394.5812381	mg/l	30

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Downstream	52	LCC23-RI-18-D	Inorganics	Nitrate Nitrite as N	12/17/2023 16:40	1.5	1.5	394.5812381	mg/l	0.04
Downstream	52	LCC23-RI-18-D	Inorganics	Total Kjeldahl Nitrogen	12/17/2023 16:40	0.87	0.87	394.5812381	mg/l	0.5
Downstream	52	LCC23-RI-18-D	Inorganics	Total Phosphorus as P	12/17/2023 16:40	0	0.05	394.5812381	mg/l	0.05
Downstream	52	LCC23-RI-18-D	Inorganics	Total Suspended Solids	12/17/2023 16:40	2.6	2.6	394.5812381	mg/l	1
Downstream	52	LCC23-RI-18-D	Metals	Copper	12/17/2023 16:40	0.55	0.55	394.5812381	ug/l	0.36
Downstream	52	LCC23-RI-18-D	Metals	Lead	12/17/2023 16:40	0	0.12	394.5812381	ug/l	0.12
Downstream	52	LCC23-RI-18-D	Metals	Zinc	12/17/2023 16:40	0	4	394.5812381	ug/l	4
Downstream	52	LCC23-RI-18-D	Oil & Grease	SGT-HEM (TPH)	12/17/2023 16:40	0	1.5	394.5812381	mg/l	1.5
Downstream	52	LCC23-P-18-D	BOD	Biochemical Oxygen Demand	12/18/2023 7:55	3.6	3.6	395.3505602	mg/l	2
Downstream	52	LCC23-P-18-D	E. coli	E. coli	12/18/2023 7:55	11450	11450	395.3505602	MPN/100 ml	100
Downstream	52	LCC23-P-18-D	Inorganics	Hardness as calcium carbonate	12/18/2023 7:55	68	68	395.3505602	mg/l	15
Downstream	52	LCC23-P-18-D	Inorganics	Nitrate Nitrite as N	12/18/2023 7:55	1.5	1.5	395.3505602	mg/l	0.04
Downstream	52	LCC23-P-18-D	Inorganics	Total Kjeldahl Nitrogen	12/18/2023 7:55	1.4	1.4	395.3505602	mg/l	0.5
Downstream	52	LCC23-P-18-D	Inorganics	Total Phosphorus as P	12/18/2023 7:55	0.41	0.41	395.3505602	mg/l	0.05
Downstream	52	LCC23-P-18-D	Inorganics	Total Suspended Solids	12/18/2023 7:55	29	29	395.3505602	mg/l	2
Downstream	52	LCC23-P-18-D	Metals	Copper	12/18/2023 7:55	5.7	5.7	395.3505602	ug/l	0.36
Downstream	52	LCC23-P-18-D	Metals	Lead	12/18/2023 7:55	1.2	1.2	395.3505602	ug/l	0.12
Downstream	52	LCC23-P-18-D	Metals	Zinc	12/18/2023 7:55	7.2	7.2	395.3505602	ug/l	4
Downstream	52	LCC23-P-18-D	Oil & Grease	SGT-HEM (TPH)	12/18/2023 7:55	0	1.6	395.3505602	mg/l	1.6
Downstream	52	LCC23-RE-18-D	BOD	Biochemical Oxygen Demand	12/18/2023 9:40	2.3	2.3	395.2107206	mg/l	2
Downstream	52	LCC23-RE-18-D	E. coli	E. coli	12/18/2023 9:40	9330	9330	395.2107206	MPN/100 ml	100
Downstream	52	LCC23-RE-18-D	Inorganics	Hardness as calcium carbonate	12/18/2023 9:40	74	74	395.2107206	mg/l	15
Downstream	52	LCC23-RE-18-D	Inorganics	Nitrate Nitrite as N	12/18/2023 9:40	1.5	1.5	395.2107206	mg/l	0.04
Downstream	52	LCC23-RE-18-D	Inorganics	Total Kjeldahl Nitrogen	12/18/2023 9:40	1.4	1.4	395.2107206	mg/l	0.5
Downstream	52	LCC23-RE-18-D	Inorganics	Total Phosphorus as P	12/18/2023 9:40	0.38	0.38	395.2107206	mg/l	0.05
Downstream	52	LCC23-RE-18-D	Inorganics	Total Suspended Solids	12/18/2023 9:40	12	12	395.2107206	mg/l	1.7
Downstream	52	LCC23-RE-18-D	Metals	Copper	12/18/2023 9:40	5	5	395.2107206	ug/l	0.36
Downstream	52	LCC23-RE-18-D	Metals	Lead	12/18/2023 9:40	0.88	0.88	395.2107206	ug/l	0.12
Downstream	52	LCC23-RE-18-D	Metals	Zinc	12/18/2023 9:40	5.2	5.2	395.2107206	ug/l	4
Downstream	52	LCC23-RE-18-D	Oil & Grease	SGT-HEM (TPH)	12/18/2023 9:40	0	1.5	395.2107206	mg/l	1.5
Upstream	53	LCC24-RI-19-U	BOD	Biochemical Oxygen Demand	1/9/2024 11:50	22	22	418.4737534	mg/l	2
Upstream	53	LCC24-RI-19-U	E. coli	E. coli	1/9/2024 11:50	6420	6420	418.4737534	MPN/100 ml	100
Upstream	53	LCC24-RI-19-U	Inorganics	Hardness as calcium carbonate	1/9/2024 11:50	140	140	418.4737534	mg/l	15
Upstream	53	LCC24-RI-19-U	Inorganics	Nitrate Nitrite as N	1/9/2024 11:50	2	2	418.4737534	mg/l	0.04
Upstream	53	LCC24-RI-19-U	Inorganics	Total Kjeldahl Nitrogen	1/9/2024 11:50	2.7	2.7	418.4737534	mg/l	0.5
Upstream	53	LCC24-RI-19-U	Inorganics	Total Phosphorus as P	1/9/2024 11:50	0.52	0.52	418.4737534	mg/l	0.05
Upstream	53	LCC24-RI-19-U	Inorganics	Total Suspended Solids	1/9/2024 11:50	25	25	418.4737534	mg/l	2
Upstream	53	LCC24-RI-19-U	Metals	Copper	1/9/2024 11:50	3.3	3.3	418.4737534	ug/l	0.36
Upstream	53	LCC24-RI-19-U	Metals	Lead	1/9/2024 11:50	1.1	1.1	418.4737534	ug/l	0.12
Upstream	53	LCC24-RI-19-U	Metals	Zinc	1/9/2024 11:50	17	17	418.4737534	ug/l	4
Upstream	53	LCC24-RI-19-U	Oil & Grease	SGT-HEM (TPH)	1/9/2024 11:50	0	1.6	418.4737534	mg/l	1.6
Upstream	53	LCC24-P-19-U	BOD	Biochemical Oxygen Demand	1/10/2024 9:00	4.3	4.3	418.788714	mg/l	2
Upstream	53	LCC24-P-19-U	E. coli	E. coli	1/10/2024 9:00	1580	1580	418.788714	MPN/100 ml	100
Upstream	53	LCC24-P-19-U	Inorganics	Hardness as calcium carbonate	1/10/2024 9:00	83	83	418.788714	mg/l	15
Upstream	53	LCC24-P-19-U	Inorganics	Nitrate Nitrite as N	1/10/2024 9:00	2.1	2.1	418.788714	mg/l	0.04
Upstream	53	LCC24-P-19-U	Inorganics	Total Kjeldahl Nitrogen	1/10/2024 9:00	1.2	1.2	418.788714	mg/l	0.5
Upstream	53	LCC24-P-19-U	Inorganics	Total Phosphorus as P	1/10/2024 9:00	0.2	0.2	418.788714	mg/l	0.05
Upstream	53	LCC24-P-19-U	Inorganics	Total Suspended Solids	1/10/2024 9:00	12	12	418.788714	mg/l	1
Upstream	53	LCC24-P-19-U	Metals	Copper	1/10/2024 9:00	2.9	2.9	418.788714	ug/l	0.36
Upstream	53	LCC24-P-19-U	Metals	Lead	1/10/2024 9:00	0.54	0.54	418.788714	ug/l	0.12
Upstream	53	LCC24-P-19-U	Metals	Zinc	1/10/2024 9:00	0	4	418.788714	ug/l	4

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Upstream	53	LCC24-P-19-U	Oil & Grease	SGT-HEM (TPH)	1/10/2024 9:00	0	1.6	418.788714	mg/l	1.6
Upstream	53	LCC24-RE-19-U	BOD	Biochemical Oxygen Demand	1/10/2024 10:30	4.4	4.4	418.7624673	mg/l	2
Upstream	53	LCC24-RE-19-U	E. coli	E. coli	1/10/2024 10:30	1340	1340	418.7624673	MPN/100 ml	100
Upstream	53	LCC24-RE-19-U	Inorganics	Hardness as calcium carbonate	1/10/2024 10:30	93	93	418.7624673	mg/l	15
Upstream	53	LCC24-RE-19-U	Inorganics	Nitrate Nitrite as N	1/10/2024 10:30	2.3	2.3	418.7624673	mg/l	0.04
Upstream	53	LCC24-RE-19-U	Inorganics	Total Kjeldahl Nitrogen	1/10/2024 10:30	1.2	1.2	418.7624673	mg/l	0.5
Upstream	53	LCC24-RE-19-U	Inorganics	Total Phosphorus as P	1/10/2024 10:30	0.2	0.2	418.7624673	mg/l	0.05
Upstream	53	LCC24-RE-19-U	Inorganics	Total Suspended Solids	1/10/2024 10:30	12	12	418.7624673	mg/l	1
Upstream	53	LCC24-RE-19-U	Metals	Copper	1/10/2024 10:30	2.9	2.9	418.7624673	ug/l	0.36
Upstream	53	LCC24-RE-19-U	Metals	Lead	1/10/2024 10:30	0.8	0.8	418.7624673	ug/l	0.12
Upstream	53	LCC24-RE-19-U	Metals	Zinc	1/10/2024 10:30	0	4	418.7624673	ug/l	4
Upstream	53	LCC24-RE-19-U	Oil & Grease	SGT-HEM (TPH)	1/10/2024 10:30	0	1.5	418.7624673	mg/l	1.5
Downstream	54	LCC24-RI-19-D	BOD	Biochemical Oxygen Demand	1/9/2024 12:25	0	2	394.7322447	mg/l	2
Downstream	54	LCC24-RI-19-D	E. coli	E. coli	1/9/2024 12:25	200	200	394.7322447	MPN/100 ml	100
Downstream	54	LCC24-RI-19-D	Inorganics	Hardness as calcium carbonate	1/9/2024 12:25	110	110	394.7322447	mg/l	15
Downstream	54	LCC24-RI-19-D	Inorganics	Nitrate Nitrite as N	1/9/2024 12:25	1.7	1.7	394.7322447	mg/l	0.04
Downstream	54	LCC24-RI-19-D	Inorganics	Total Kjeldahl Nitrogen	1/9/2024 12:25	0.68	0.68	394.7322447	mg/l	0.5
Downstream	54	LCC24-RI-19-D	Inorganics	Total Phosphorus as P	1/9/2024 12:25	0.052	0.052	394.7322447	mg/l	0.05
Downstream	54	LCC24-RI-19-D	Inorganics	Total Suspended Solids	1/9/2024 12:25	1.9	1.9	394.7322447	mg/l	1
Downstream	54	LCC24-RI-19-D	Metals	Copper	1/9/2024 12:25	1.1	1.1	394.7322447	ug/l	0.36
Downstream	54	LCC24-RI-19-D	Metals	Lead	1/9/2024 12:25	0	0.12	394.7322447	ug/l	0.12
Downstream	54	LCC24-RI-19-D	Metals	Zinc	1/9/2024 12:25	0	4	394.7322447	ug/l	4
Downstream	54	LCC24-RI-19-D	Oil & Grease	SGT-HEM (TPH)	1/9/2024 12:25	0	1.6	394.7322447	mg/l	1.6
Downstream	54	LCC24-P-19-D	BOD	Biochemical Oxygen Demand	1/10/2024 9:45	2.6	2.6	395.2066629	mg/l	2
Downstream	54	LCC24-P-19-D	E. coli	E. coli	1/10/2024 9:45	740	740	395.2066629	MPN/100 ml	100
Downstream	54	LCC24-P-19-D	Inorganics	Hardness as calcium carbonate	1/10/2024 9:45	120	120	395.2066629	mg/l	15
Downstream	54	LCC24-P-19-D	Inorganics	Nitrate Nitrite as N	1/10/2024 9:45	2	2	395.2066629	mg/l	0.04
Downstream	54	LCC24-P-19-D	Inorganics	Total Kjeldahl Nitrogen	1/10/2024 9:45	0.95	0.95	395.2066629	mg/l	0.5
Downstream	54	LCC24-P-19-D	Inorganics	Total Phosphorus as P	1/10/2024 9:45	0.19	0.19	395.2066629	mg/l	0.05
Downstream	54	LCC24-P-19-D	Inorganics	Total Suspended Solids	1/10/2024 9:45	4.6	4.6	395.2066629	mg/l	1
Downstream	54	LCC24-P-19-D	Metals	Copper	1/10/2024 9:45	3	3	395.2066629	ug/l	0.36
Downstream	54	LCC24-P-19-D	Metals	Lead	1/10/2024 9:45	0.48	0.48	395.2066629	ug/l	0.12
Downstream	54	LCC24-P-19-D	Metals	Zinc	1/10/2024 9:45	0	4	395.2066629	ug/l	4
Downstream	54	LCC24-P-19-D	Oil & Grease	SGT-HEM (TPH)	1/10/2024 9:45	1.8	1.8	395.2066629	mg/l	1.6
Downstream	54	LCC24-RE-19-D	BOD	Biochemical Oxygen Demand	1/10/2024 11:45	2.2	2.2	395.1636421	mg/l	2
Downstream	54	LCC24-RE-19-D	E. coli	E. coli	1/10/2024 11:45	970	970	395.1636421	MPN/100 ml	100
Downstream	54	LCC24-RE-19-D	Inorganics	Hardness as calcium carbonate	1/10/2024 11:45	100	100	395.1636421	mg/l	15
Downstream	54	LCC24-RE-19-D	Inorganics	Nitrate Nitrite as N	1/10/2024 11:45	2.1	2.1	395.1636421	mg/l	0.04
Downstream	54	LCC24-RE-19-D	Inorganics	Total Kjeldahl Nitrogen	1/10/2024 11:45	0.91	0.91	395.1636421	mg/l	0.5
Downstream	54	LCC24-RE-19-D	Inorganics	Total Phosphorus as P	1/10/2024 11:45	0.17	0.17	395.1636421	mg/l	0.05
Downstream	54	LCC24-RE-19-D	Inorganics	Total Suspended Solids	1/10/2024 11:45	2.8	2.8	395.1636421	mg/l	1
Downstream	54	LCC24-RE-19-D	Metals	Copper	1/10/2024 11:45	2.5	2.5	395.1636421	ug/l	0.36
Downstream	54	LCC24-RE-19-D	Metals	Lead	1/10/2024 11:45	0.39	0.39	395.1636421	ug/l	0.12
Downstream	54	LCC24-RE-19-D	Metals	Zinc	1/10/2024 11:45	0	4	395.1636421	ug/l	4
Downstream	54	LCC24-RE-19-D	Oil & Grease	SGT-HEM (TPH)	1/10/2024 11:45	0	1.6	395.1636421	mg/l	1.6
Upstream	55	LCC24-RI-20-U	BOD	Biochemical Oxygen Demand	3/9/2024 9:05	18	18	418.5853019	mg/l	2
Upstream	55	LCC24-RI-20-U	E. coli	E. coli	3/9/2024 9:05	3360	3360	418.5853019	MPN/100 ml	100
Upstream	55	LCC24-RI-20-U	Inorganics	Hardness as calcium carbonate	3/9/2024 9:05	130	130	418.5853019	mg/l	15
Upstream	55	LCC24-RI-20-U	Inorganics	Nitrate Nitrite as N	3/9/2024 9:05	2.9	2.9	418.5853019	mg/l	0.08
Upstream	55	LCC24-RI-20-U	Inorganics	Total Kjeldahl Nitrogen	3/9/2024 9:05	5	5	418.5853019	mg/l	0.5
Upstream	55	LCC24-RI-20-U	Inorganics	Total Phosphorus as P	3/9/2024 9:05	0.36	0.36	418.5853019	mg/l	0.05

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Upstream	55	LCC24-RI-20-U	Inorganics	Total Suspended Solids	3/9/2024 9:05	27	27	418.5853019	mg/l	2
Upstream	55	LCC24-RI-20-U	Metals	Copper	3/9/2024 9:05	17	17	418.5853019	ug/l	0.36
Upstream	55	LCC24-RI-20-U	Metals	Lead	3/9/2024 9:05	8.6	8.6	418.5853019	ug/l	0.12
Upstream	55	LCC24-RI-20-U	Metals	Zinc	3/9/2024 9:05	52	52	418.5853019	ug/l	4
Upstream	55	LCC24-RI-20-U	Oil & Grease	SGT-HEM (TPH)	3/9/2024 9:05	0	1.6	418.5853019	mg/l	1.6
Upstream	55	LCC24-P-20-U	BOD	Biochemical Oxygen Demand	3/9/2024 14:12	13	13	419.2447508	mg/l	2
Upstream	55	LCC24-P-20-U	E. coli	E. coli	3/9/2024 14:12	11870	11870	419.2447508	MPN/100 ml	100
Upstream	55	LCC24-P-20-U	Inorganics	Hardness as calcium carbonate	3/9/2024 14:12	130	130	419.2447508	mg/l	15
Upstream	55	LCC24-P-20-U	Inorganics	Nitrate Nitrite as N	3/9/2024 14:12	0.73	0.73	419.2447508	mg/l	0.04
Upstream	55	LCC24-P-20-U	Inorganics	Total Kjeldahl Nitrogen	3/9/2024 14:12	4	4	419.2447508	mg/l	0.5
Upstream	55	LCC24-P-20-U	Inorganics	Total Phosphorus as P	3/9/2024 14:12	0.62	0.62	419.2447508	mg/l	0.05
Upstream	55	LCC24-P-20-U	Inorganics	Total Suspended Solids	3/9/2024 14:12	310	310	419.2447508	mg/l	10
Upstream	55	LCC24-P-20-U	Metals	Copper	3/9/2024 14:12	0	0.36	419.2447508	ug/l	0.36
Upstream	55	LCC24-P-20-U	Metals	Lead	3/9/2024 14:12	0	0.12	419.2447508	ug/l	0.12
Upstream	55	LCC24-P-20-U	Metals	Zinc	3/9/2024 14:12	0	4	419.2447508	ug/l	4
Upstream	55	LCC24-P-20-U	Oil & Grease	SGT-HEM (TPH)	3/9/2024 14:12	0	1.7	419.2447508	mg/l	1.7
Upstream	55	LCC24-RE-20-U	BOD	Biochemical Oxygen Demand	3/9/2024 16:45	6.7	6.7	419.3136484	mg/l	2
Upstream	55	LCC24-RE-20-U	E. coli	E. coli	3/9/2024 16:45	8390	8390	419.3136484	MPN/100 ml	100
Upstream	55	LCC24-RE-20-U	Inorganics	Hardness as calcium carbonate	3/9/2024 16:45	61	61	419.3136484	mg/l	15
Upstream	55	LCC24-RE-20-U	Inorganics	Nitrate Nitrite as N	3/9/2024 16:45	0.63	0.63	419.3136484	mg/l	0.04
Upstream	55	LCC24-RE-20-U	Inorganics	Total Kjeldahl Nitrogen	3/9/2024 16:45	3.5	3.5	419.3136484	mg/l	0.5
Upstream	55	LCC24-RE-20-U	Inorganics	Total Phosphorus as P	3/9/2024 16:45	0.52	0.52	419.3136484	mg/l	0.05
Upstream	55	LCC24-RE-20-U	Inorganics	Total Suspended Solids	3/9/2024 16:45	150	150	419.3136484	mg/l	5
Upstream	55	LCC24-RE-20-U	Metals	Copper	3/9/2024 16:45	11	11	419.3136484	ug/l	0.36
Upstream	55	LCC24-RE-20-U	Metals	Lead	3/9/2024 16:45	4.4	4.4	419.3136484	ug/l	0.12
Upstream	55	LCC24-RE-20-U	Metals	Zinc	3/9/2024 16:45	28	28	419.3136484	ug/l	4
Upstream	55	LCC24-RE-20-U	Oil & Grease	SGT-HEM (TPH)	3/9/2024 16:45	0	1.6	419.3136484	mg/l	1.6
Downstream	56	LCC24-RI-20-D	BOD	Biochemical Oxygen Demand	3/9/2024 9:40	0	2	394.9640036	mg/l	2
Downstream	56	LCC24-RI-20-D	E. coli	E. coli	3/9/2024 9:40	410	410	394.9640036	MPN/100 ml	100
Downstream	56	LCC24-RI-20-D	Inorganics	Hardness as calcium carbonate	3/9/2024 9:40	120	120	394.9640036	mg/l	15
Downstream	56	LCC24-RI-20-D	Inorganics	Nitrate Nitrite as N	3/9/2024 9:40	2.6	2.6	394.9640036	mg/l	0.08
Downstream	56	LCC24-RI-20-D	Inorganics	Total Kjeldahl Nitrogen	3/9/2024 9:40	1.2	1.2	394.9640036	mg/l	0.5
Downstream	56	LCC24-RI-20-D	Inorganics	Total Phosphorus as P	3/9/2024 9:40	0.052	0.052	394.9640036	mg/l	0.05
Downstream	56	LCC24-RI-20-D	Inorganics	Total Suspended Solids	3/9/2024 9:40	3.8	3.8	394.9640036	mg/l	1
Downstream	56	LCC24-RI-20-D	Metals	Copper	3/9/2024 9:40	1	1	394.9640036	ug/l	0.36
Downstream	56	LCC24-RI-20-D	Metals	Lead	3/9/2024 9:40	0	0.12	394.9640036	ug/l	0.12
Downstream	56	LCC24-RI-20-D	Metals	Zinc	3/9/2024 9:40	0	4	394.9640036	ug/l	4
Downstream	56	LCC24-RI-20-D	Oil & Grease	SGT-HEM (TPH)	3/9/2024 9:40	0	1.6	394.9640036	mg/l	1.6
Downstream	56	LCC24-P-20-D	BOD	Biochemical Oxygen Demand	3/9/2024 14:50	5.9	5.9	396.3122715	mg/l	5
Downstream	56	LCC24-P-20-D	E. coli	E. coli	3/9/2024 14:50	9590	9590	396.3122715	MPN/100 ml	100
Downstream	56	LCC24-P-20-D	Inorganics	Hardness as calcium carbonate	3/9/2024 14:50	84	84	396.3122715	mg/l	15
Downstream	56	LCC24-P-20-D	Inorganics	Nitrate Nitrite as N	3/9/2024 14:50	0.91	0.91	396.3122715	mg/l	0.04
Downstream	56	LCC24-P-20-D	Inorganics	Total Kjeldahl Nitrogen	3/9/2024 14:50	3.9	3.9	396.3122715	mg/l	0.5
Downstream	56	LCC24-P-20-D	Inorganics	Total Phosphorus as P	3/9/2024 14:50	0.46	0.46	396.3122715	mg/l	0.05
Downstream	56	LCC24-P-20-D	Inorganics	Total Suspended Solids	3/9/2024 14:50	64	64	396.3122715	mg/l	5
Downstream	56	LCC24-P-20-D	Metals	Copper	3/9/2024 14:50	8	8	396.3122715	ug/l	0.36
Downstream	56	LCC24-P-20-D	Metals	Lead	3/9/2024 14:50	3	3	396.3122715	ug/l	0.12
Downstream	56	LCC24-P-20-D	Metals	Zinc	3/9/2024 14:50	22	22	396.3122715	ug/l	4
Downstream	56	LCC24-P-20-D	Oil & Grease	SGT-HEM (TPH)	3/9/2024 14:50	0	1.6	396.3122715	mg/l	1.6
Downstream	56	LCC24-RE-20-D	BOD	Biochemical Oxygen Demand	3/9/2024 17:10	0	5	396.3915979	mg/l	5
Downstream	56	LCC24-RE-20-D	E. coli	E. coli	3/9/2024 17:10	9320	9320	396.3915979	MPN/100 ml	100

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Downstream	56	LCC24-RE-20-D	Inorganics	Hardness as calcium carbonate	3/9/2024 17:10	69	69	396.3915979	mg/l	15
Downstream	56	LCC24-RE-20-D	Inorganics	Nitrate Nitrite as N	3/9/2024 17:10	0.7	0.7	396.3915979	mg/l	0.04
Downstream	56	LCC24-RE-20-D	Inorganics	Total Kjeldahl Nitrogen	3/9/2024 17:10	4.4	4.4	396.3915979	mg/l	0.5
Downstream	56	LCC24-RE-20-D	Inorganics	Total Phosphorus as P	3/9/2024 17:10	0.47	0.47	396.3915979	mg/l	0.05
Downstream	56	LCC24-RE-20-D	Inorganics	Total Suspended Solids	3/9/2024 17:10	87	87	396.3915979	mg/l	5
Downstream	56	LCC24-RE-20-D	Metals	Copper	3/9/2024 17:10	7.2	7.2	396.3915979	ug/l	0.36
Downstream	56	LCC24-RE-20-D	Metals	Lead	3/9/2024 17:10	2.4	2.4	396.3915979	ug/l	0.12
Downstream	56	LCC24-RE-20-D	Metals	Zinc	3/9/2024 17:10	14	14	396.3915979	ug/l	4
Downstream	56	LCC24-RE-20-D	Oil & Grease	SGT-HEM (TPH)	3/9/2024 17:10	0	1.6	396.3915979	mg/l	1.6
Upstream	57	LCC24-RI-21-U	BOD	Biochemical Oxygen Demand	3/23/2024 8:15	15	15	418.8313649	mg/l	2
Upstream	57	LCC24-RI-21-U	E. coli	E. coli	3/23/2024 8:15	9870	9870	418.8313649	MPN/100 ml	100
Upstream	57	LCC24-RI-21-U	Inorganics	Hardness as calcium carbonate	3/23/2024 8:15	110	110	418.8313649	mg/l	15
Upstream	57	LCC24-RI-21-U	Inorganics	Nitrate Nitrite as N	3/23/2024 8:15	2.6	2.6	418.8313649	mg/l	0.04
Upstream	57	LCC24-RI-21-U	Inorganics	Total Kjeldahl Nitrogen	3/23/2024 8:15	1.4	1.4	418.8313649	mg/l	0.5
Upstream	57	LCC24-RI-21-U	Inorganics	Total Phosphorus as P	3/23/2024 8:15	0.13	0.13	418.8313649	mg/l	0.05
Upstream	57	LCC24-RI-21-U	Inorganics	Total Suspended Solids	3/23/2024 8:15	16	16	418.8313649	mg/l	1
Upstream	57	LCC24-RI-21-U	Metals	Copper	3/23/2024 8:15	2.3	2.3	418.8313649	ug/l	0.36
Upstream	57	LCC24-RI-21-U	Metals	Lead	3/23/2024 8:15	0.25	0.25	418.8313649	ug/l	0.12
Upstream	57	LCC24-RI-21-U	Metals	Zinc	3/23/2024 8:15	7	7	418.8313649	ug/l	4
Upstream	57	LCC24-RI-21-U	Oil & Grease	SGT-HEM (TPH)	3/23/2024 8:15	0	1.6	418.8313649	mg/l	1.6
Upstream	57	LCC24-P-21-U	BOD	Biochemical Oxygen Demand	3/23/2024 11:55	18	18	419.0052494	mg/l	2
Upstream	57	LCC24-P-21-U	E. coli	E. coli	3/23/2024 11:55	22820	22820	419.0052494	MPN/100 ml	100
Upstream	57	LCC24-P-21-U	Inorganics	Hardness as calcium carbonate	3/23/2024 11:55	88	88	419.0052494	mg/l	15
Upstream	57	LCC24-P-21-U	Inorganics	Nitrate Nitrite as N	3/23/2024 11:55	1.9	1.9	419.0052494	mg/l	0.04
Upstream	57	LCC24-P-21-U	Inorganics	Total Kjeldahl Nitrogen	3/23/2024 11:55	2.9	2.9	419.0052494	mg/l	0.5
Upstream	57	LCC24-P-21-U	Inorganics	Total Phosphorus as P	3/23/2024 11:55	0.77	0.77	419.0052494	mg/l	0.05
Upstream	57	LCC24-P-21-U	Inorganics	Total Suspended Solids	3/23/2024 11:55	240	240	419.0052494	mg/l	10
Upstream	57	LCC24-P-21-U	Metals	Copper	3/23/2024 11:55	11	11	419.0052494	ug/l	0.36
Upstream	57	LCC24-P-21-U	Metals	Lead	3/23/2024 11:55	3	3	419.0052494	ug/l	0.12
Upstream	57	LCC24-P-21-U	Metals	Zinc	3/23/2024 11:55	22	22	419.0052494	ug/l	4
Upstream	57	LCC24-P-21-U	Oil & Grease	SGT-HEM (TPH)	3/23/2024 11:55	0	1.6	419.0052494	mg/l	1.6
Upstream	57	LCC24-RE-21-U	BOD	Biochemical Oxygen Demand	3/23/2024 13:30	14	14	418.8346458	mg/l	2
Upstream	57	LCC24-RE-21-U	E. coli	E. coli	3/23/2024 13:30	12740	12740	418.8346458	MPN/100 ml	100
Upstream	57	LCC24-RE-21-U	Inorganics	Hardness as calcium carbonate	3/23/2024 13:30	78	78	418.8346458	mg/l	15
Upstream	57	LCC24-RE-21-U	Inorganics	Nitrate Nitrite as N	3/23/2024 13:30	1.9	1.9	418.8346458	mg/l	0.04
Upstream	57	LCC24-RE-21-U	Inorganics	Total Kjeldahl Nitrogen	3/23/2024 13:30	2.8	2.8	418.8346458	mg/l	0.5
Upstream	57	LCC24-RE-21-U	Inorganics	Total Phosphorus as P	3/23/2024 13:30	0.7	0.7	418.8346458	mg/l	0.05
Upstream	57	LCC24-RE-21-U	Inorganics	Total Suspended Solids	3/23/2024 13:30	51	51	418.8346458	mg/l	2.5
Upstream	57	LCC24-RE-21-U	Metals	Copper	3/23/2024 13:30	8.2	8.2	418.8346458	ug/l	0.36
Upstream	57	LCC24-RE-21-U	Metals	Lead	3/23/2024 13:30	1.4	1.4	418.8346458	ug/l	0.12
Upstream	57	LCC24-RE-21-U	Metals	Zinc	3/23/2024 13:30	11	11	418.8346458	ug/l	4
Upstream	57	LCC24-RE-21-U	Oil & Grease	SGT-HEM (TPH)	3/23/2024 13:30	0	1.5	418.8346458	mg/l	1.5
Downstream	58	LCC24-RI-21-D	BOD	Biochemical Oxygen Demand	3/23/2024 8:45	8.9	8.9	395.272351	mg/l	2
Downstream	58	LCC24-RI-21-D	E. coli	E. coli	3/23/2024 8:45	5730	5730	395.272351	MPN/100 ml	100
Downstream	58	LCC24-RI-21-D	Inorganics	Hardness as calcium carbonate	3/23/2024 8:45	130	130	395.272351	mg/l	15
Downstream	58	LCC24-RI-21-D	Inorganics	Nitrate Nitrite as N	3/23/2024 8:45	2.3	2.3	395.272351	mg/l	0.04
Downstream	58	LCC24-RI-21-D	Inorganics	Total Kjeldahl Nitrogen	3/23/2024 8:45	1.1	1.1	395.272351	mg/l	0.5
Downstream	58	LCC24-RI-21-D	Inorganics	Total Phosphorus as P	3/23/2024 8:45	0.13	0.13	395.272351	mg/l	0.05
Downstream	58	LCC24-RI-21-D	Inorganics	Total Suspended Solids	3/23/2024 8:45	19	19	395.272351	mg/l	1
Downstream	58	LCC24-RI-21-D	Metals	Copper	3/23/2024 8:45	2.2	2.2	395.272351	ug/l	0.36
Downstream	58	LCC24-RI-21-D	Metals	Lead	3/23/2024 8:45	0.18	0.18	395.272351	ug/l	0.12

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Downstream	58	LCC24-RI-21-D	Metals	Zinc	3/23/2024 8:45	0	4	395.272351	ug/l	4
Downstream	58	LCC24-RI-21-D	Oil & Grease	SGT-HEM (TPH)	3/23/2024 8:45	0	1.6	395.272351	mg/l	1.6
Downstream	58	LCC24-P-21-D	BOD	Biochemical Oxygen Demand	3/23/2024 12:20	14	14	395.6028564	mg/l	2
Downstream	58	LCC24-P-21-D	E. coli	E. coli	3/23/2024 12:20	27550	27550	395.6028564	MPN/100 ml	100
Downstream	58	LCC24-P-21-D	Inorganics	Hardness as calcium carbonate	3/23/2024 12:20	86	86	395.6028564	mg/l	15
Downstream	58	LCC24-P-21-D	Inorganics	Nitrate Nitrite as N	3/23/2024 12:20	1.8	1.8	395.6028564	mg/l	0.04
Downstream	58	LCC24-P-21-D	Inorganics	Total Kjeldahl Nitrogen	3/23/2024 12:20	2.2	2.2	395.6028564	mg/l	0.5
Downstream	58	LCC24-P-21-D	Inorganics	Total Phosphorus as P	3/23/2024 12:20	0.29	0.29	395.6028564	mg/l	0.05
Downstream	58	LCC24-P-21-D	Inorganics	Total Suspended Solids	3/23/2024 12:20	44	44	395.6028564	mg/l	2
Downstream	58	LCC24-P-21-D	Metals	Copper	3/23/2024 12:20	7.1	7.1	395.6028564	ug/l	0.36
Downstream	58	LCC24-P-21-D	Metals	Lead	3/23/2024 12:20	1.3	1.3	395.6028564	ug/l	0.12
Downstream	58	LCC24-P-21-D	Metals	Zinc	3/23/2024 12:20	14	14	395.6028564	ug/l	4
Downstream	58	LCC24-P-21-D	Oil & Grease	SGT-HEM (TPH)	3/23/2024 12:20	0	1.6	395.6028564	mg/l	1.6
Downstream	58	LCC24-RE-21-D	BOD	Biochemical Oxygen Demand	3/23/2024 13:05	12	12	395.4838534	mg/l	2
Downstream	58	LCC24-RE-21-D	E. coli	E. coli	3/23/2024 13:05	27230	27230	395.4838534	MPN/100 ml	100
Downstream	58	LCC24-RE-21-D	Inorganics	Hardness as calcium carbonate	3/23/2024 13:05	79	79	395.4838534	mg/l	15
Downstream	58	LCC24-RE-21-D	Inorganics	Nitrate Nitrite as N	3/23/2024 13:05	1.9	1.9	395.4838534	mg/l	0.04
Downstream	58	LCC24-RE-21-D	Inorganics	Total Kjeldahl Nitrogen	3/23/2024 13:05	2.4	2.4	395.4838534	mg/l	0.5
Downstream	58	LCC24-RE-21-D	Inorganics	Total Phosphorus as P	3/23/2024 13:05	0.49	0.49	395.4838534	mg/l	0.05
Downstream	58	LCC24-RE-21-D	Inorganics	Total Suspended Solids	3/23/2024 13:05	47	47	395.4838534	mg/l	2.6
Downstream	58	LCC24-RE-21-D	Metals	Copper	3/23/2024 13:05	7.1	7.1	395.4838534	ug/l	0.36
Downstream	58	LCC24-RE-21-D	Metals	Lead	3/23/2024 13:05	1.2	1.2	395.4838534	ug/l	0.12
Downstream	58	LCC24-RE-21-D	Metals	Zinc	3/23/2024 13:05	10	10	395.4838534	ug/l	4
Downstream	58	LCC24-RE-21-D	Oil & Grease	SGT-HEM (TPH)	3/23/2024 13:05	0	1.6	395.4838534	mg/l	1.6
Upstream	59	LCC24-RI-22-U	BOD	Biochemical Oxygen Demand	5/4/2024 9:30	0	2	417.9947507	mg/l	2
Upstream	59	LCC24-RI-22-U	E. coli	E. coli	5/4/2024 9:30	970	970	417.9947507	MPN/100 ml	100
Upstream	59	LCC24-RI-22-U	Inorganics	Hardness as calcium carbonate	5/4/2024 9:30	99	99	417.9947507	mg/l	15
Upstream	59	LCC24-RI-22-U	Inorganics	Nitrate Nitrite as N	5/4/2024 9:30	2.1	2.1	417.9947507	mg/l	0.08
Upstream	59	LCC24-RI-22-U	Inorganics	Total Kjeldahl Nitrogen	5/4/2024 9:30	0.51	0.51	417.9947507	mg/l	0.5
Upstream	59	LCC24-RI-22-U	Inorganics	Total Phosphorus as P	5/4/2024 9:30	0	0.05	417.9947507	mg/l	0.05
Upstream	59	LCC24-RI-22-U	Inorganics	Total Suspended Solids	5/4/2024 9:30	4.5	4.5	417.9947507	mg/l	1
Upstream	59	LCC24-RI-22-U	Metals	Copper	5/4/2024 9:30	0.73	0.73	417.9947507	ug/l	0.36
Upstream	59	LCC24-RI-22-U	Metals	Lead	5/4/2024 9:30	0	0.12	417.9947507	ug/l	0.12
Upstream	59	LCC24-RI-22-U	Metals	Zinc	5/4/2024 9:30	0	4	417.9947507	ug/l	4
Upstream	59	LCC24-RI-22-U	Oil & Grease	SGT-HEM (TPH)	5/4/2024 9:30	0	1.6	417.9947507	mg/l	1.6
Upstream	59	LCC24-P-22-U	BOD	Biochemical Oxygen Demand	5/5/2024 10:55	3.4	3.4	418.3458006	mg/l	2
Upstream	59	LCC24-P-22-U	E. coli	E. coli	5/5/2024 10:55	68670	68670	418.3458006	MPN/100 ml	100
Upstream	59	LCC24-P-22-U	Inorganics	Hardness as calcium carbonate	5/5/2024 10:55	79	79	418.3458006	mg/l	15
Upstream	59	LCC24-P-22-U	Inorganics	Nitrate Nitrite as N	5/5/2024 10:55	2.1	2.1	418.3458006	mg/l	0.04
Upstream	59	LCC24-P-22-U	Inorganics	Total Kjeldahl Nitrogen	5/5/2024 10:55	1.3	1.3	418.3458006	mg/l	0.5
Upstream	59	LCC24-P-22-U	Inorganics	Total Phosphorus as P	5/5/2024 10:55	0.18	0.18	418.3458006	mg/l	0.05
Upstream	59	LCC24-P-22-U	Inorganics	Total Suspended Solids	5/5/2024 10:55	10	10	418.3458006	mg/l	1
Upstream	59	LCC24-P-22-U	Metals	Copper	5/5/2024 10:55	2.6	2.6	418.3458006	ug/l	0.36
Upstream	59	LCC24-P-22-U	Metals	Lead	5/5/2024 10:55	0.4	0.4	418.3458006	ug/l	0.12
Upstream	59	LCC24-P-22-U	Metals	Zinc	5/5/2024 10:55	5.2	5.2	418.3458006	ug/l	4
Upstream	59	LCC24-P-22-U	Oil & Grease	SGT-HEM (TPH)	5/5/2024 10:55	0	1.6	418.3458006	mg/l	1.6
Upstream	59	LCC24-RE-22-U	BOD	Biochemical Oxygen Demand	5/5/2024 12:20	2.6	2.6	418.2834646	mg/l	2
Upstream	59	LCC24-RE-22-U	E. coli	E. coli	5/5/2024 12:20	38730	38730	418.2834646	MPN/100 ml	100
Upstream	59	LCC24-RE-22-U	Inorganics	Hardness as calcium carbonate	5/5/2024 12:20	63	63	418.2834646	mg/l	15
Upstream	59	LCC24-RE-22-U	Inorganics	Nitrate Nitrite as N	5/5/2024 12:20	1.9	1.9	418.2834646	mg/l	0.04
Upstream	59	LCC24-RE-22-U	Inorganics	Total Kjeldahl Nitrogen	5/5/2024 12:20	1.3	1.3	418.2834646	mg/l	0.5

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Upstream	59	LCC24-RE-22-U	Inorganics	Total Phosphorus as P	5/5/2024 12:20	0.12	0.12	418.2834646	mg/l	0.05
Upstream	59	LCC24-RE-22-U	Inorganics	Total Suspended Solids	5/5/2024 12:20	25	25	418.2834646	mg/l	1.8
Upstream	59	LCC24-RE-22-U	Metals	Copper	5/5/2024 12:20	2.3	2.3	418.2834646	ug/l	0.36
Upstream	59	LCC24-RE-22-U	Metals	Lead	5/5/2024 12:20	0.36	0.36	418.2834646	ug/l	0.12
Upstream	59	LCC24-RE-22-U	Metals	Zinc	5/5/2024 12:20	4.4	4.4	418.2834646	ug/l	4
Upstream	59	LCC24-RE-22-U	Oil & Grease	SGT-HEM (TPH)	5/5/2024 12:20	0	1.6	418.2834646	mg/l	1.6
Downstream	60	LCC24-RI-22-D	BOD	Biochemical Oxygen Demand	5/4/2024 10:00	2.7	2.7	394.7505352	mg/l	2
Downstream	60	LCC24-RI-22-D	E. coli	E. coli	5/4/2024 10:00	410	410	394.7505352	MPN/100 ml	100
Downstream	60	LCC24-RI-22-D	Inorganics	Hardness as calcium carbonate	5/4/2024 10:00	84	84	394.7505352	mg/l	15
Downstream	60	LCC24-RI-22-D	Inorganics	Nitrate Nitrite as N	5/4/2024 10:00	1.5	1.5	394.7505352	mg/l	0.04
Downstream	60	LCC24-RI-22-D	Inorganics	Total Kjeldahl Nitrogen	5/4/2024 10:00	0.61	0.61	394.7505352	mg/l	0.5
Downstream	60	LCC24-RI-22-D	Inorganics	Total Phosphorus as P	5/4/2024 10:00	0	0.05	394.7505352	mg/l	0.05
Downstream	60	LCC24-RI-22-D	Inorganics	Total Suspended Solids	5/4/2024 10:00	11	11	394.7505352	mg/l	1
Downstream	60	LCC24-RI-22-D	Metals	Copper	5/4/2024 10:00	0.95	0.95	394.7505352	ug/l	0.36
Downstream	60	LCC24-RI-22-D	Metals	Lead	5/4/2024 10:00	0.17	0.17	394.7505352	ug/l	0.12
Downstream	60	LCC24-RI-22-D	Metals	Zinc	5/4/2024 10:00	0	4	394.7505352	ug/l	4
Downstream	60	LCC24-RI-22-D	Oil & Grease	SGT-HEM (TPH)	5/4/2024 10:00	0	1.5	394.7505352	mg/l	1.5
Downstream	60	LCC24-P-22-D	BOD	Biochemical Oxygen Demand	5/5/2024 11:20	3.5	3.5	394.9731549	mg/l	2
Downstream	60	LCC24-P-22-D	E. coli	E. coli	5/5/2024 11:20	61310	61310	394.9731549	MPN/100 ml	100
Downstream	60	LCC24-P-22-D	Inorganics	Hardness as calcium carbonate	5/5/2024 11:20	100	100	394.9731549	mg/l	15
Downstream	60	LCC24-P-22-D	Inorganics	Nitrate Nitrite as N	5/5/2024 11:20	1.8	1.8	394.9731549	mg/l	0.04
Downstream	60	LCC24-P-22-D	Inorganics	Total Kjeldahl Nitrogen	5/5/2024 11:20	1.4	1.4	394.9731549	mg/l	0.5
Downstream	60	LCC24-P-22-D	Inorganics	Total Phosphorus as P	5/5/2024 11:20	0.17	0.17	394.9731549	mg/l	0.05
Downstream	60	LCC24-P-22-D	Inorganics	Total Suspended Solids	5/5/2024 11:20	23	23	394.9731549	mg/l	2
Downstream	60	LCC24-P-22-D	Metals	Copper	5/5/2024 11:20	2.4	2.4	394.9731549	ug/l	0.36
Downstream	60	LCC24-P-22-D	Metals	Lead	5/5/2024 11:20	0.3	0.3	394.9731549	ug/l	0.12
Downstream	60	LCC24-P-22-D	Metals	Zinc	5/5/2024 11:20	0	4	394.9731549	ug/l	4
Downstream	60	LCC24-P-22-D	Oil & Grease	SGT-HEM (TPH)	5/5/2024 11:20	0	1.5	394.9731549	mg/l	1.5
Downstream	60	LCC24-RE-22-D	BOD	Biochemical Oxygen Demand	5/5/2024 11:55	2.8	2.8	394.9556281	mg/l	2
Downstream	60	LCC24-RE-22-D	E. coli	E. coli	5/5/2024 11:55	64880	64880	394.9556281	MPN/100 ml	100
Downstream	60	LCC24-RE-22-D	Inorganics	Hardness as calcium carbonate	5/5/2024 11:55	100	100	394.9556281	mg/l	15
Downstream	60	LCC24-RE-22-D	Inorganics	Nitrate Nitrite as N	5/5/2024 11:55	1.9	1.9	394.9556281	mg/l	0.04
Downstream	60	LCC24-RE-22-D	Inorganics	Total Kjeldahl Nitrogen	5/5/2024 11:55	1.3	1.3	394.9556281	mg/l	0.5
Downstream	60	LCC24-RE-22-D	Inorganics	Total Phosphorus as P	5/5/2024 11:55	0.17	0.17	394.9556281	mg/l	0.05
Downstream	60	LCC24-RE-22-D	Inorganics	Total Suspended Solids	5/5/2024 11:55	12	12	394.9556281	mg/l	1
Downstream	60	LCC24-RE-22-D	Metals	Copper	5/5/2024 11:55	2.3	2.3	394.9556281	ug/l	0.36
Downstream	60	LCC24-RE-22-D	Metals	Lead	5/5/2024 11:55	0.27	0.27	394.9556281	ug/l	0.12
Downstream	60	LCC24-RE-22-D	Metals	Zinc	5/5/2024 11:55	4	4	394.9556281	ug/l	4
Downstream	60	LCC24-RE-22-D	Oil & Grease	SGT-HEM (TPH)	5/5/2024 11:55	0	1.5	394.9556281	mg/l	1.5
Upstream	61	LCC24-RI-23-U	BOD	Biochemical Oxygen Demand	6/5/2024 15:30	4.1	4.1	417.8766405	mg/l	2
Upstream	61	LCC24-RI-23-U	E. coli	E. coli	6/5/2024 15:30	9330	9330	417.8766405	MPN/100 ml	100
Upstream	61	LCC24-RI-23-U	Inorganics	Hardness as calcium carbonate	6/5/2024 15:30	110	110	417.8766405	mg/l	15
Upstream	61	LCC24-RI-23-U	Inorganics	Nitrate Nitrite as N	6/5/2024 15:30	1.6	1.6	417.8766405	mg/l	0.04
Upstream	61	LCC24-RI-23-U	Inorganics	Total Kjeldahl Nitrogen	6/5/2024 15:30	0.63	0.63	417.8766405	mg/l	0.5
Upstream	61	LCC24-RI-23-U	Inorganics	Total Phosphorus as P	6/5/2024 15:30	0.075	0.075	417.8766405	mg/l	0.05
Upstream	61	LCC24-RI-23-U	Inorganics	Total Suspended Solids	6/5/2024 15:30	40	40	417.8766405	mg/l	1
Upstream	61	LCC24-RI-23-U	Metals	Copper	6/5/2024 15:30	2.5	2.5	417.8766405	ug/l	0.36
Upstream	61	LCC24-RI-23-U	Metals	Lead	6/5/2024 15:30	0.72	0.72	417.8766405	ug/l	0.12
Upstream	61	LCC24-RI-23-U	Metals	Zinc	6/5/2024 15:30	5.6	5.6	417.8766405	ug/l	4
Upstream	61	LCC24-RI-23-U	Oil & Grease	SGT-HEM (TPH)	6/5/2024 15:30	0	1.6	417.8766405	mg/l	1.6
Upstream	61	LCC24-P-23-U	BOD	Biochemical Oxygen Demand	6/6/2024 7:30	6.2	6.2	418.0078741	mg/l	2

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Upstream	61	LCC24-P-23-U	E. coli	E. coli	6/6/2024 7:30	54750	54750	418.0078741	MPN/100 ml	100
Upstream	61	LCC24-P-23-U	Inorganics	Hardness as calcium carbonate	6/6/2024 7:30	93	93	418.0078741	mg/l	15
Upstream	61	LCC24-P-23-U	Inorganics	Nitrate Nitrite as N	6/6/2024 7:30	2	2	418.0078741	mg/l	0.04
Upstream	61	LCC24-P-23-U	Inorganics	Total Kjeldahl Nitrogen	6/6/2024 7:30	1.1	1.1	418.0078741	mg/l	0.5
Upstream	61	LCC24-P-23-U	Inorganics	Total Phosphorus as P	6/6/2024 7:30	0.21	0.21	418.0078741	mg/l	0.05
Upstream	61	LCC24-P-23-U	Inorganics	Total Suspended Solids	6/6/2024 7:30	9.6	9.6	418.0078741	mg/l	1
Upstream	61	LCC24-P-23-U	Metals	Copper	6/6/2024 7:30	2.1	2.1	418.0078741	ug/l	0.36
Upstream	61	LCC24-P-23-U	Metals	Lead	6/6/2024 7:30	0.38	0.38	418.0078741	ug/l	0.12
Upstream	61	LCC24-P-23-U	Metals	Zinc	6/6/2024 7:30	4	4	418.0078741	ug/l	4
Upstream	61	LCC24-P-23-U	Oil & Grease	SGT-HEM (TPH)	6/6/2024 7:30	0	1.6	418.0078741	mg/l	1.6
Upstream	61	LCC24-RE-23-U	BOD	Biochemical Oxygen Demand	6/6/2024 10:15	5.7	5.7	417.9947507	mg/l	2
Upstream	61	LCC24-RE-23-U	E. coli	E. coli	6/6/2024 10:15	63540	63540	417.9947507	MPN/100 ml	100
Upstream	61	LCC24-RE-23-U	Inorganics	Hardness as calcium carbonate	6/6/2024 10:15	110	110	417.9947507	mg/l	15
Upstream	61	LCC24-RE-23-U	Inorganics	Nitrate Nitrite as N	6/6/2024 10:15	1.9	1.9	417.9947507	mg/l	0.04
Upstream	61	LCC24-RE-23-U	Inorganics	Total Kjeldahl Nitrogen	6/6/2024 10:15	1	1	417.9947507	mg/l	0.5
Upstream	61	LCC24-RE-23-U	Inorganics	Total Phosphorus as P	6/6/2024 10:15	0.18	0.18	417.9947507	mg/l	0.05
Upstream	61	LCC24-RE-23-U	Inorganics	Total Suspended Solids	6/6/2024 10:15	7.7	7.7	417.9947507	mg/l	1
Upstream	61	LCC24-RE-23-U	Metals	Copper	6/6/2024 10:15	1.8	1.8	417.9947507	ug/l	0.36
Upstream	61	LCC24-RE-23-U	Metals	Lead	6/6/2024 10:15	0.29	0.29	417.9947507	ug/l	0.12
Upstream	61	LCC24-RE-23-U	Metals	Zinc	6/6/2024 10:15	0	4	417.9947507	ug/l	4
Upstream	61	LCC24-RE-23-U	Oil & Grease	SGT-HEM (TPH)	6/6/2024 10:15	0	1.5	417.9947507	mg/l	1.5
Downstream	62	LCC24-RI-23-D	BOD	Biochemical Oxygen Demand	6/5/2024 16:00	5	5	394.7921048	mg/l	2
Downstream	62	LCC24-RI-23-D	E. coli	E. coli	6/5/2024 16:00	8330	8330	394.7921048	MPN/100 ml	100
Downstream	62	LCC24-RI-23-D	Inorganics	Hardness as calcium carbonate	6/5/2024 16:00	95	95	394.7921048	mg/l	15
Downstream	62	LCC24-RI-23-D	Inorganics	Nitrate Nitrite as N	6/5/2024 16:00	1.3	1.3	394.7921048	mg/l	0.04
Downstream	62	LCC24-RI-23-D	Inorganics	Total Kjeldahl Nitrogen	6/5/2024 16:00	0.76	0.76	394.7921048	mg/l	0.5
Downstream	62	LCC24-RI-23-D	Inorganics	Total Phosphorus as P	6/5/2024 16:00	0.1	0.1	394.7921048	mg/l	0.05
Downstream	62	LCC24-RI-23-D	Inorganics	Total Suspended Solids	6/5/2024 16:00	14	14	394.7921048	mg/l	1
Downstream	62	LCC24-RI-23-D	Metals	Copper	6/5/2024 16:00	1.1	1.1	394.7921048	ug/l	0.36
Downstream	62	LCC24-RI-23-D	Metals	Lead	6/5/2024 16:00	0.27	0.27	394.7921048	ug/l	0.12
Downstream	62	LCC24-RI-23-D	Metals	Zinc	6/5/2024 16:00	0	4	394.7921048	ug/l	4
Downstream	62	LCC24-RI-23-D	Oil & Grease	SGT-HEM (TPH)	6/5/2024 16:00	0	1.6	394.7921048	mg/l	1.6
Downstream	62	LCC24-P-23-D	BOD	Biochemical Oxygen Demand	6/6/2024 8:15	5.7	5.7	394.826579	mg/l	2
Downstream	62	LCC24-P-23-D	E. coli	E. coli	6/6/2024 8:15	43520	43520	394.826579	MPN/100 ml	100
Downstream	62	LCC24-P-23-D	Inorganics	Hardness as calcium carbonate	6/6/2024 8:15	94	94	394.826579	mg/l	15
Downstream	62	LCC24-P-23-D	Inorganics	Nitrate Nitrite as N	6/6/2024 8:15	1.6	1.6	394.826579	mg/l	0.04
Downstream	62	LCC24-P-23-D	Inorganics	Total Kjeldahl Nitrogen	6/6/2024 8:15	1.2	1.2	394.826579	mg/l	0.5
Downstream	62	LCC24-P-23-D	Inorganics	Total Phosphorus as P	6/6/2024 8:15	0.17	0.17	394.826579	mg/l	0.05
Downstream	62	LCC24-P-23-D	Inorganics	Total Suspended Solids	6/6/2024 8:15	8.1	8.1	394.826579	mg/l	1
Downstream	62	LCC24-P-23-D	Metals	Copper	6/6/2024 8:15	2.7	2.7	394.826579	ug/l	0.36
Downstream	62	LCC24-P-23-D	Metals	Lead	6/6/2024 8:15	0.34	0.34	394.826579	ug/l	0.12
Downstream	62	LCC24-P-23-D	Metals	Zinc	6/6/2024 8:15	0	4	394.826579	ug/l	4
Downstream	62	LCC24-P-23-D	Oil & Grease	SGT-HEM (TPH)	6/6/2024 8:15	0	1.5	394.826579	mg/l	1.5
Downstream	62	LCC24-RE-23-D	BOD	Biochemical Oxygen Demand	6/6/2024 10:45	4.9	4.9	394.8094309	mg/l	2
Downstream	62	LCC24-RE-23-D	E. coli	E. coli	6/6/2024 10:45	19890	19890	394.8094309	MPN/100 ml	100
Downstream	62	LCC24-RE-23-D	Inorganics	Hardness as calcium carbonate	6/6/2024 10:45	46	46	394.8094309	mg/l	6
Downstream	62	LCC24-RE-23-D	Inorganics	Nitrate Nitrite as N	6/6/2024 10:45	1.6	1.6	394.8094309	mg/l	0.04
Downstream	62	LCC24-RE-23-D	Inorganics	Total Kjeldahl Nitrogen	6/6/2024 10:45	1.1	1.1	394.8094309	mg/l	0.5
Downstream	62	LCC24-RE-23-D	Inorganics	Total Phosphorus as P	6/6/2024 10:45	0.15	0.15	394.8094309	mg/l	0.05
Downstream	62	LCC24-RE-23-D	Inorganics	Total Suspended Solids	6/6/2024 10:45	5.8	5.8	394.8094309	mg/l	1
Downstream	62	LCC24-RE-23-D	Metals	Copper	6/6/2024 10:45	1.8	1.8	394.8094309	ug/l	0.36

Station	Event_id	Sample_Name	Analyte_Group	Chemical_Name	Sample_Date	Result (ND=0)	Result (ND=MDL)	WSEL_NAVD88feet	Unit	MDL
Downstream	62	LCC24-RE-23-D	Metals	Lead	6/6/2024 10:45	0.19	0.19	394.8094309	ug/l	0.12
Downstream	62	LCC24-RE-23-D	Metals	Zinc	6/6/2024 10:45	0	4	394.8094309	ug/l	4
Downstream	62	LCC24-RE-23-D	Oil & Grease	SGT-HEM (TPH)	6/6/2024 10:45	0	1.5	394.8094309	mg/l	1.5
Upstream	63	BF-04-U	BOD	Biochemical Oxygen Demand	6/28/2024 10:00	0	2	417.7093176	mg/l	2
Upstream	63	BF-04-U	E. coli	E. coli	6/28/2024 10:00	1274	1274	417.7093176	MPN/100 ml	10
Upstream	63	BF-04-U	Inorganics	Hardness as calcium carbonate	6/28/2024 10:00	130	130	417.7093176	mg/l	15
Upstream	63	BF-04-U	Inorganics	Nitrate Nitrite as N	6/28/2024 10:00	0.78	0.78	417.7093176	mg/l	0.04
Upstream	63	BF-04-U	Inorganics	Total Kjeldahl Nitrogen	6/28/2024 10:00	0.62	0.62	417.7093176	mg/l	0.5
Upstream	63	BF-04-U	Inorganics	Total Phosphorus as P	6/28/2024 10:00	0.11	0.11	417.7093176	mg/l	0.05
Upstream	63	BF-04-U	Inorganics	Total Suspended Solids	6/28/2024 10:00	4.1	4.1	417.7093176	mg/l	1
Upstream	63	BF-04-U	Metals	Copper	6/28/2024 10:00	0.99	0.99	417.7093176	ug/l	0.36
Upstream	63	BF-04-U	Metals	Lead	6/28/2024 10:00	0.25	0.25	417.7093176	ug/l	0.12
Upstream	63	BF-04-U	Metals	Zinc	6/28/2024 10:00	0	4	417.7093176	ug/l	4
Upstream	63	BF-04-U	Oil & Grease	SGT-HEM (TPH)	6/28/2024 10:00	0	1.6	417.7093176	mg/l	1.6
Downstream	64	BF-04-D	BOD	Biochemical Oxygen Demand	6/28/2024 10:35	0	2	394.642777	mg/l	2
Downstream	64	BF-04-D	E. coli	E. coli	6/28/2024 10:35	1178	1178	394.642777	MPN/100 ml	10
Downstream	64	BF-04-D	Inorganics	Hardness as calcium carbonate	6/28/2024 10:35	140	140	394.642777	mg/l	15
Downstream	64	BF-04-D	Inorganics	Nitrate Nitrite as N	6/28/2024 10:35	1.4	1.4	394.642777	mg/l	0.04
Downstream	64	BF-04-D	Inorganics	Total Kjeldahl Nitrogen	6/28/2024 10:35	0.6	0.6	394.642777	mg/l	0.5
Downstream	64	BF-04-D	Inorganics	Total Phosphorus as P	6/28/2024 10:35	0.081	0.081	394.642777	mg/l	0.05
Downstream	64	BF-04-D	Inorganics	Total Suspended Solids	6/28/2024 10:35	3.2	3.2	394.642777	mg/l	1
Downstream	64	BF-04-D	Metals	Copper	6/28/2024 10:35	0.71	0.71	394.642777	ug/l	0.36
Downstream	64	BF-04-D	Metals	Lead	6/28/2024 10:35	0	0.12	394.642777	ug/l	0.12
Downstream	64	BF-04-D	Metals	Zinc	6/28/2024 10:35	0	4	394.642777	ug/l	4
Downstream	64	BF-04-D	Oil & Grease	SGT-HEM (TPH)	6/28/2024 10:35	0	1.6	394.642777	mg/l	1.6

ATTACHMENT B: BOXPLOT EMC COMPARISONS

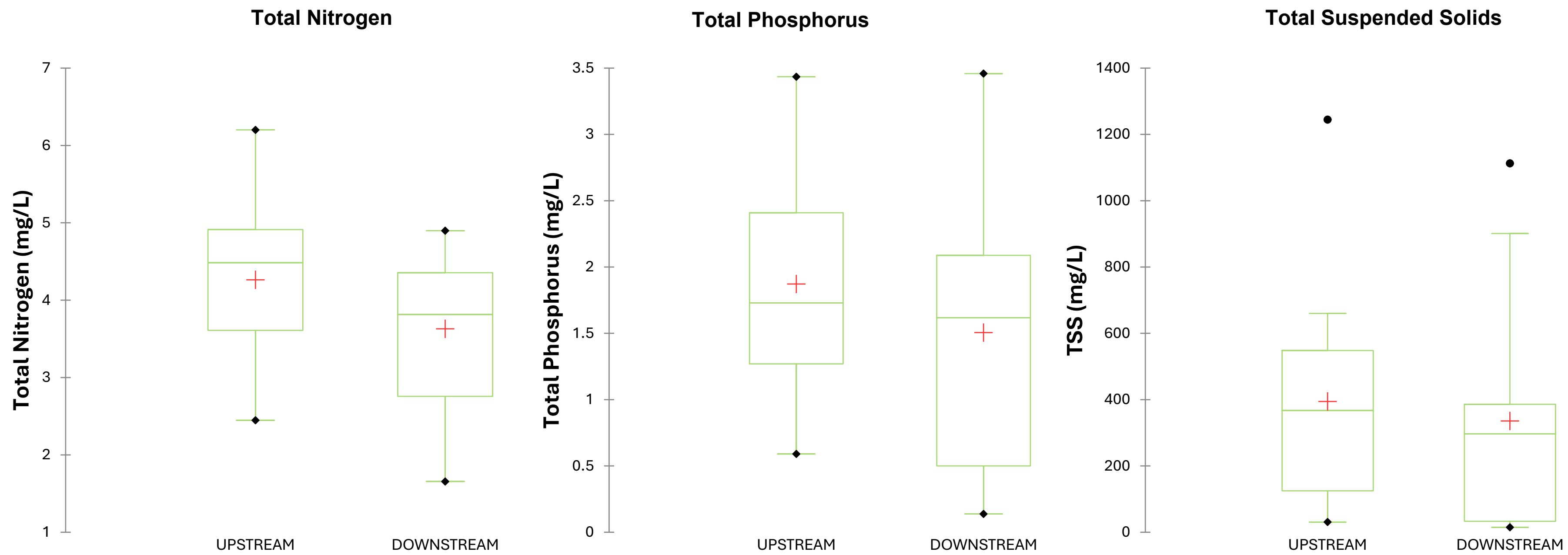

Figure B-1. Boxplot Comparisons of EMCs during the Pre-Construction Phase

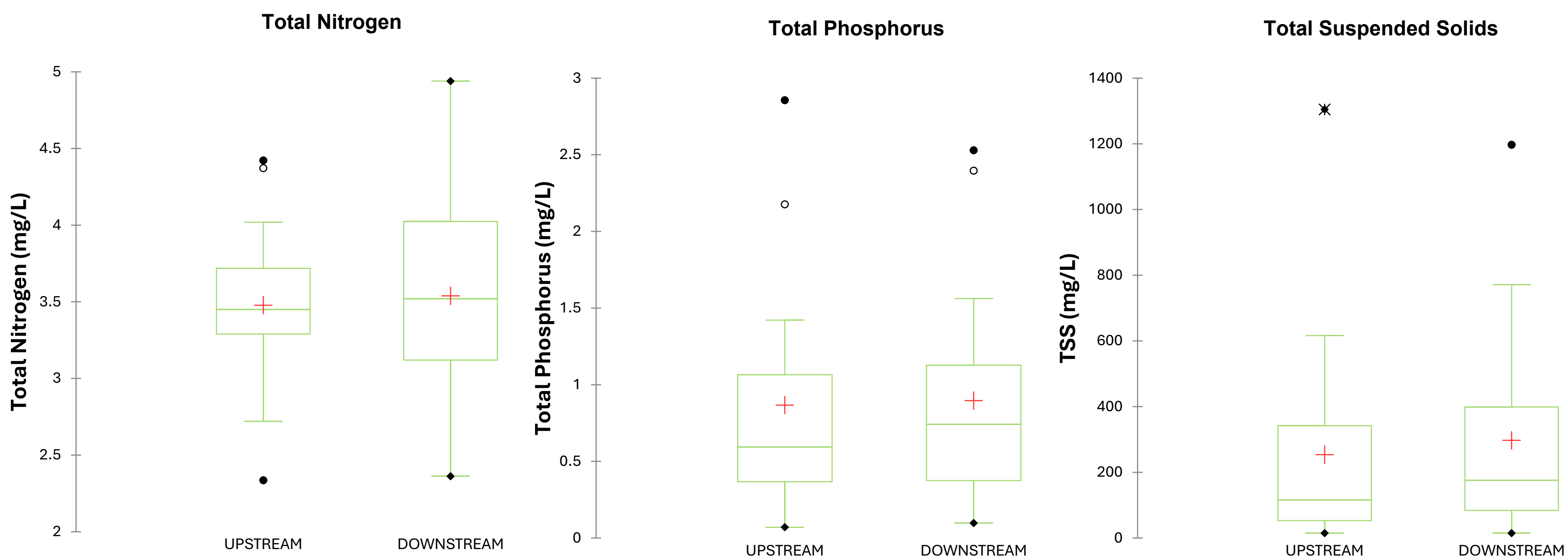

Figure B-2. Boxplot Comparisons of EMCs during the Construction Phase

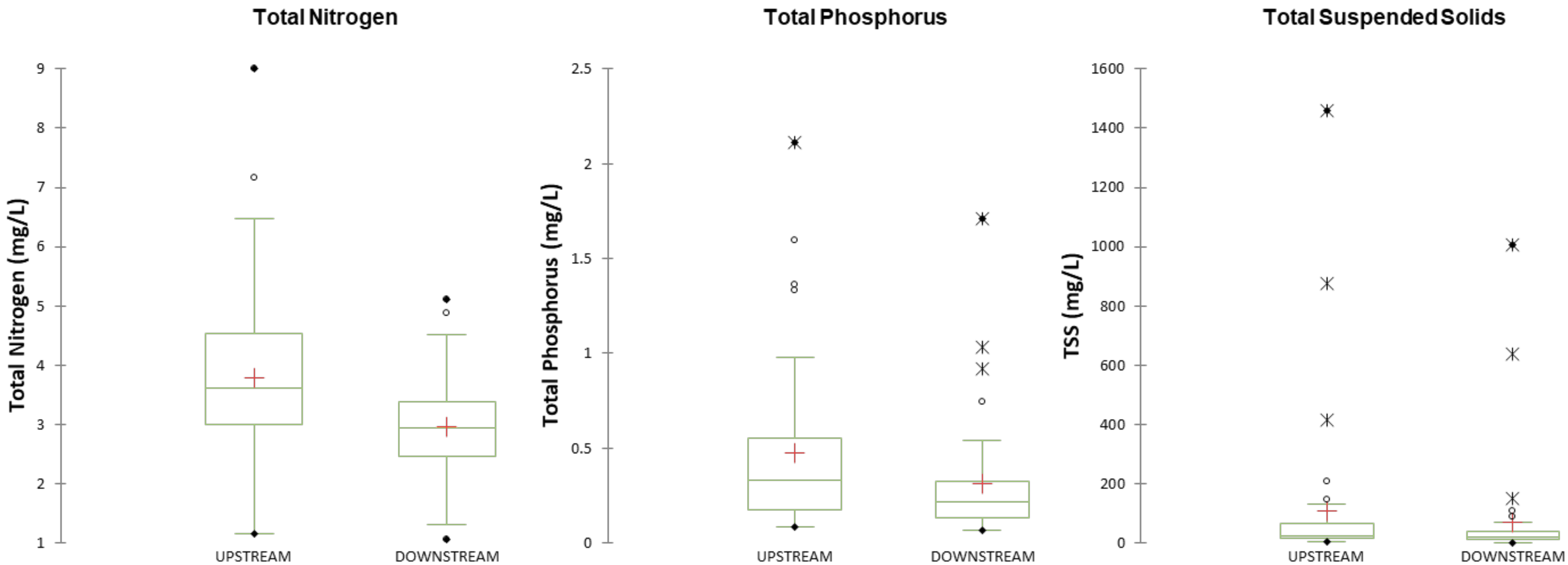

Figure B-3. Boxplot Comparisons of EMCs during the Post-Construction Phase