Stormwater Outfall Monitoring Summary

Water Year 2024

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Prepared for
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Stormwater Outfall Monitoring Summary WY 2024

Ada County Highway District

11/20/2024

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1 Introduction

Ada County Highway District (ACHD), Boise State University, City of Boise, City of Garden City, Drainage District #3, and the Idaho Transportation Department District #3 (Permittees) were issued a third-cycle National Pollutant Discharge Elimination System (NPDES) Phase Permit #IDS027561 (Permit) on October 1, 2021. The Permit authorizes the Permittees to discharge from municipal separate storm sewer system outfalls to the Boise River and its tributaries. According to Permit Part 6.2.1, Wet Weather Stormwater Outfall Monitoring, Permittees are required to monitor wet weather stormwater discharges according to the NPDES Phase I Stormwater Outfall Monitoring Plan (ACHD, 2022). The following summary covers wet weather outfall monitoring activities during water year (WY) 2024 (October 1, 2023–September 30, 2024). WY 2024 represents the third year of monitoring under the new Permit cycle.

The Stormwater Outfall Monitoring Program (SWOMP) was developed in line with the Quality Assurance Project Plan for NPDES Stormwater Permit Monitoring (QAPP) (ACHD, 2022) and describes the overall approach to stormwater outfall monitoring. Details about specific site characteristics, equipment, data collection and sample handling procedures, analytical methods, and quality assurance/quality control methodology are found in the SWOMP.

In WY 2024, data collection for the SWOMP included precipitation, flow, and water quality samples. Four outfall monitoring sites within the Permit area (Lucky, Whitewater, Main, and Americana) were monitored for flow and water quality. The water quality samples were collected from wet weather discharges and included grab samples with corresponding field parameters and composite samples, which were collected throughout the duration of a storm. Additionally, four rain gauge sites (East, Front, Cynthia Mann, and Whitewater) were maintained to provide localized precipitation data. Each rain gauge location represents at least one of the monitored subwatersheds and was used to verify that storm criteria were met.

2 Monitoring Sites, Equipment, and Sample Type

The SWOMP consists of four monitored subwatersheds: Lucky, Whitewater, Main, and Americana. Monitoring stations for each subwatershed are located near the outfalls with dedicated equipment installed at each location. Table 2-1 depicts the equipment types and referenced rain gauge site for each subwatershed. A vicinity map illustrating the location of each subwatershed, monitoring station, and rain gauge site is found in Figure 1 (Appendix A).

Table 2-1. Monitoring Station Equipment

Monitoring Site	Lucky	Whitewater	Main	Americana
Sampler type	Hach AS950	ISCO 6712	Hach AS950	ISCO 6712
Flowmeter type	Hach AV9000	ISCO Signature	Hach AV9000	ISCO Signature
Referenced rain gauge	Cynthia Mann	Whitewater	Front	Front and East
Rain gauge equipment types	Global Water tipping bucket/HOBO event logger	Hach tipping bucket/ISCO Signature	Global Water tipping bucket/HOBO event logger	Global Water tipping bucket/HOBO event logger

2.1 Sample Types

The sample types collected during WY 2024 included grab samples and composite samples. Grab samples represent a discrete measurement from the overall storm discharge while composite samples represent the entire discharge.

Grab samples were manually collected using a swing sampler. The grab samples were submitted to the Boise City Water Quality Laboratory and analyzed for *E. coli*. At the time that the grab samples were collected, field parameters (temperature, pH, dissolved oxygen [DO], and conductivity) were measured using In-Situ smarTROLL or In-Situ AquaTROLL handheld instruments.

Composite samples were collected using automatic samplers, which worked in conjunction with flowmeters. After a predetermined volume of flow was discharged, the flowmeters triggered the samplers to collect a subsample. Each subsample was deposited into a 15-liter carboy, resulting in a flow-proportional composite sample. The composite samples were submitted to the Boise City Water Quality Laboratory, where they were split for analysis. The following constituents were analyzed during WY 2024: biological oxygen demand, 5-day; chemical oxygen demand; hardness as calcium carbonate; turbidity; total suspended solids (TSS); total dissolved solids (TDS); total phosphorus (TP); orthophosphate, as P (ortho-P); ammonia; nitrate + nitrite; total Kjeldahl nitrogen (TKN); total arsenic; dissolved and total cadmium; dissolved copper; dissolved and total lead; total mercury; and dissolved zinc.

3 Stormwater Outfall Monitoring Results

Wet weather stormwater samples were collected according to the procedures listed in the SWOMP. One of the goals in the SWOMP is to collect three accepted (unqualified) grab and composite samples from each monitoring station during each water year. In WY 2024, samples were attempted during five storms to meet this goal. A summary of the storm dates and sample types collected is shown in Table 3-1. Storm setup and sampling information are included in Table 1 (Appendix B). Storm Event Reports were created after each stormwater sampling event to monitor the status of the SWOMP and discuss the hydrological and analytical data from the grab and composite samples. These Storm Event Reports include details about the storm and weather monitoring, hydrographs, sample collection times, and water quality results. Individual Storm Event Reports for the five sampling events during WY 2024 are included in Appendix C.

Table 3-1. Storm Events and Sample Types

Date	Lucky	Whitewater	Main	Americana
October 10, 2023	G, C [1, 2]	G	–	G, C [3]
November 19, 2023	G, C	G, C	G, C	G [4], FD, FB, C
February 1, 2024	G [5], FD, FB, C	G [5], C [5], CD	G [5], C	G [5], C
February 26, 2024	G, C	G, C	G, FD, FB, C [7]	G, C
March 28, 2024	–	C	G, FD, FB, C	G, CB

Sample types: G = grab, C = composite

QC Sample types: FD = field duplicate, FB = field blank, CD = lab duplicate/composite split, CB = field blank composite

[1] Composite samples qualified due to lack of representativeness (50%–75%).

[2] Incomplete water quality analysis due to low composite sample volume.

[3] Composite samples qualified due to lack of representativeness (50%–75%) of the calculated flow volume.

[4] Incomplete field parameter collection on the grab sample data form due to field error.

[5] *E. coli* sample qualified due to exceeded hold time.

[6] Composite sample rejected due to automatic sampler triggering prior to storm event runoff. The subsamples taken prior to the event represented more than 10% of the composite volume.

[7] Composite sample qualified due to automatic sampler triggering prior to storm event runoff. The subsamples taken prior to the event represented less than 10% of the composite volume.

3.1 Wet Weather Analytical Results

Field parameter results are presented in Table 2 and analytical results are presented in Table 3 (Appendix B). Graphical representation of the analytical results is provided in Figures 2–5 (Appendix A). The following assessment provides minimum and maximum measured values for WY 2024. Qualified data are included in the range of measured/reported values as well as the data analysis. Rejected data are not included in the analysis or data discussion below; however, they are presented in the tables. All measurements were recorded in accordance with QAPP and SWOMP procedures.

DO and oxygen demand

- DO ranged from 4.920 to 10.88 milligrams per liter (mg/L).
- Biological oxygen demand, 5-day concentrations ranged from 5.03 to 61.9 mg/L.
- Chemical oxygen demand concentrations ranged from 39.0 to 167 mg/L.

pH, temperature, conductivity, and hardness

- pH values ranged from 5.66 to 8.27 standard units.
- Temperature ranged from 4.75 to 17.2 degrees Celsius.
- Conductivity ranged from 81.35 to 749.2 micro-siemens per centimeter.
- Hardness ranged from (< 0.100) to 102 mg/L as calcium carbonate.

Bacteria

- *E. coli* ranged from < 1.000 to 2,720 most probable number per 100 milliliters.

Sediment

- Turbidity ranged from 8.60 to 103 nephelometric turbidity units.
- TSS ranged from 8.63 to 131 mg/L.
- TDS ranged from 44.2 to 236 mg/L.

Nutrients

- Ammonia ranged from 0.173 to 0.829 mg/L as N.
- Nitrate + nitrite ranged from 0.145 to 0.969 mg/L as N.
- TKN ranged from 0.894 to 2.43 mg/L.

Phosphorus

- TP ranged from 0.143 to 0.958 mg/L.
- Ortho-P ranged from 0.0494 to 0.768 mg/L as P.

Metals

- Total arsenic ranged from 0.660 to 5.50 micrograms per liter (µg/L).
- Dissolved cadmium ranged from below the method detection limit (MDL) (< 0.0100) to 4.50 µg/L.
- Total cadmium ranged from 0.024 to 0.130 µg/L.
- Dissolved copper ranged from 1.90 to 8.20 µg/L.
- Dissolved lead ranged from 0.0280 to 0.210 µg/L.

- Total lead ranged from 0.330 to 6.10 µg/L.
- Total mercury ranged from below the MDL (< 0.0100) to 0.0191 µg/L.
- Dissolved zinc ranged from 9.80 to 51.7 µg/L.

3.2 Monitored Event Pollutant Loading Results

Pollutant loading estimates in pounds per acre (lbs/ac) were calculated for the following constituents of concern: TSS, TP, ammonia, nitrate + nitrite, and TKN. The reported concentrations were combined with runoff volumes measured during the storm event at each monitoring station. Formulas that were used, including conversion factors to estimate the loading in lbs/ac, are described in the SWOMP. Table 4 (Appendix B) presents the estimated pollutant loading of the constituents for each monitored storm. The pollutant loading contributions for each site are shown graphically in Figure 6 (Appendix A). Table 5 (Appendix B) is a summary of event loading estimates in pounds per acre for comparison between monitored drainage areas. Rejected data are not included in the analysis or data discussion below; however, they are presented in the tables. A summary of the estimated ranges of pollutant loading for the storm events monitored during WY 2024 is presented below.

- TSS loading estimates ranged from 0.0400 to 3.52 lbs/ac.
- TP loading estimates ranged from 0.000617 to 0.0114 lbs/ac.
- Ammonia loading estimates ranged from 0.000771 to 0.0170 lbs/ac.
- Nitrate + nitrite loading estimates ranged from 0.00162 to 0.0168 lbs/ac.
- TKN loading estimates ranged from 0.00367 to 0.0453 lbs/ac.

3.3 Precipitation Results

Precipitation data from the Front, East, Cynthia Mann, and Whitewater rain gauges were used to validate all targeted storms during WY 2024. Each monitoring station is associated with a rain gauge. Precipitation data recorded for each of the targeted storms can be found in Table 1 (Appendix B). Monthly totals for WY 2024 are shown in Figure 7 (Appendix A).

4 Quality Assurance/Quality Control

Quality assurance (QA) and quality control (QC) measures for the SWOMP are presented in detail in the QAPP and SWOMP. No deviations from the QAPP and SWOMP occurred during WY 2024. QA and QC measures conducted during the water year are discussed below.

4.1 Data Quality Discussion

A data validation review process was used to evaluate the analytical and field parameter results. These checklists were used to compare monitoring methods and monitoring data collected against performance criteria established to meet the data quality objectives described in the QAPP. Field parameter results and analytical results that were qualified are identified in Tables 2 and 3 (Appendix B), respectively. Further information regarding qualified samples is included in the Storm Event Reports located in Appendix C.

The following program criteria are used to identify storm events and representative composite samples.

- Storm criteria are met when the precipitation amount is greater than 0.10 inch, and the storm was preceded by a minimum 72 hours of dry weather from the previous measurable storm event (rainfall greater than 0.10 inch).
- Composite samples are considered representative of stormwater runoff when aliquots

represent greater than 75 percent of total runoff volume from the storm or greater than 6 hours of the storm, including the first hour of runoff.

For WY 2024, the following storm events did not meet the above criteria:

October 10, 2023

- The composite sample collected from the Lucky monitoring station on October 10, 2023, was qualified due lack of representativeness (50%–75%) during the storm event, as well as an incomplete water quality analysis due to low composite sample volume.
- The composite samples collected from Americana monitoring station were qualified due to lack of representativeness (50%–75%) of the calculated flow.

November 19, 2023

- The grab sample collected from the Americana monitoring station on November 19, 2023, was an incomplete field parameter due to field error.

February 1, 2024

- The grab samples collected for each monitoring station on February 1, 2024, were qualified due to *E. coli* samples exceeding hold time.

February 26, 2024

- The composite sample collected from the Main monitoring station on February 26, 2024, was qualified due to automatic sampler triggering prior to storm event runoff. The subsamples taken prior to the event represented less than 10% of the composite volume.

4.2 Field QA/QC Sample Results

During WY 2024, field QA/QC samples collected included field blanks, field duplicate samples, equipment blanks, and rinsate blanks. Sample results for all field QC samples are included in Table 6 (Appendix B).

4.2.1 Field Duplicate and Blank Samples

Field duplicates are field grab samples that were taken alongside a parent grab sample to compare the accuracy of the data. For *E. coli*, the allowable logarithmic relative percent difference (RPD) between the duplicate sample and the parent sample is 40 percent. The field duplicate sample collected for the Lucky monitoring station on February 1, 2024, did not meet the RPD standard due to the parent grab sample exceeding the hold time for E. *coli*.

Analytical results from field and composite blanks are expected to be less than the MDL. If a water quality parameter is detected in a field or composite blank, all analytical results associated with the blank that exhibit a concentration of less than five times the concentration detected in the blank, are qualified. All field blank samples collected had a result less than the MDL. The field blank composite collected on March 28, 2024, did not exhibit a concentration of less than five times the concentration detected in the blank.

4.2.2 Equipment and Rinsate Blank Samples

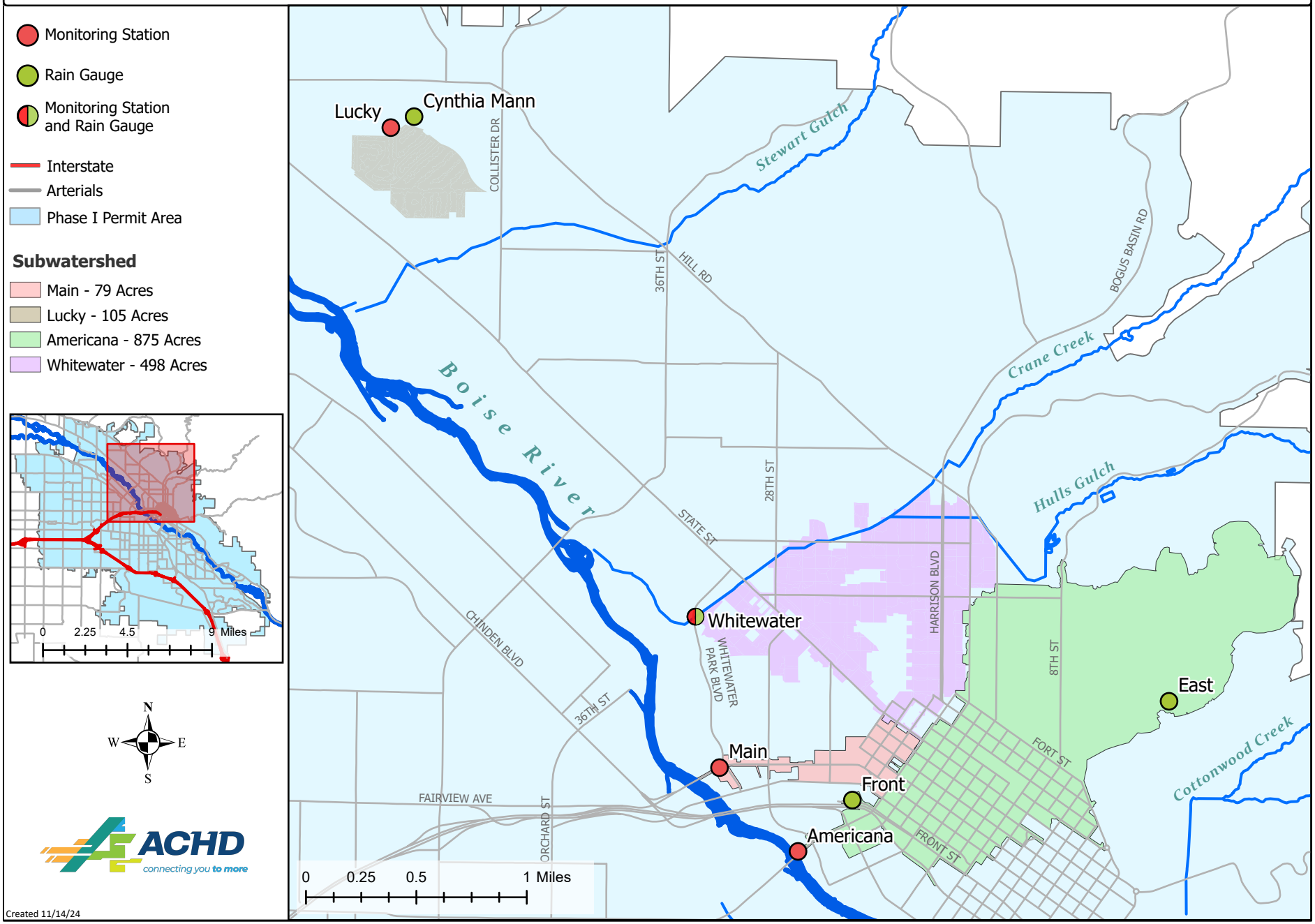
The equipment blank is collected before sampling for the water year begins and when new equipment is installed. For WY 2024, the equipment blank was collected on September 9, 10, and 17, 2024, at the Main, Whitewater, Americana, and Lucky monitoring stations. All composite constituents mentioned in Section 2 were detected in the sample.

The rinsate blank is collected after sampling for the water year has been completed. The rinsate blank

for WY 2024 was collected on September 10 and 17, 2024, at the Main, Whitewater, Americana, and Lucky monitoring stations. All composite constituents mentioned in Section 2 were detected in the sample. The dissolved copper result that was collected on September 10, 2024, at Americana was less than five times the value detected in the blank; therefore, it has been qualified and is considered an estimate. All other results were greater than five times the detected value in the blank and are unqualified.

Appendix A: Figures

Figure 1: Vicinity Map
Phase I NPDES Outfall Sampling Stations



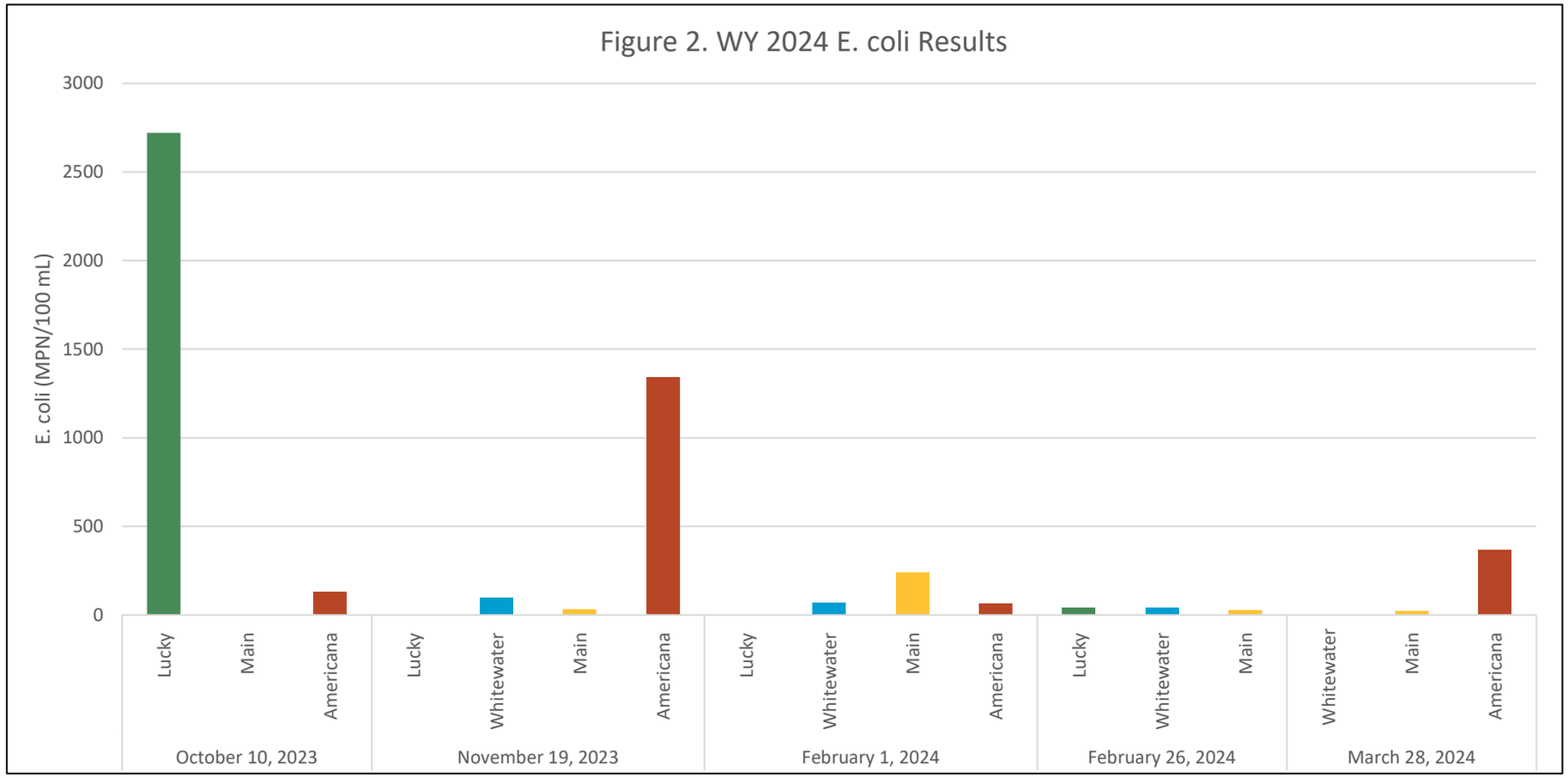


Figure 2. WY 2024 E. coli Results
E. coli (MPN/100 mL)
3000
2500
2000
1500
1000
500
0
Lucky
Main
Americana
Lucky
Whitewater
Main
Americana
Lucky
Whitewater
Main
Americana
Lucky
Whitewater
Main
Whitewater
Main
Americana
October 10, 2023
November 19, 2023
February 1, 2024
February 26, 2024
March 28, 2024

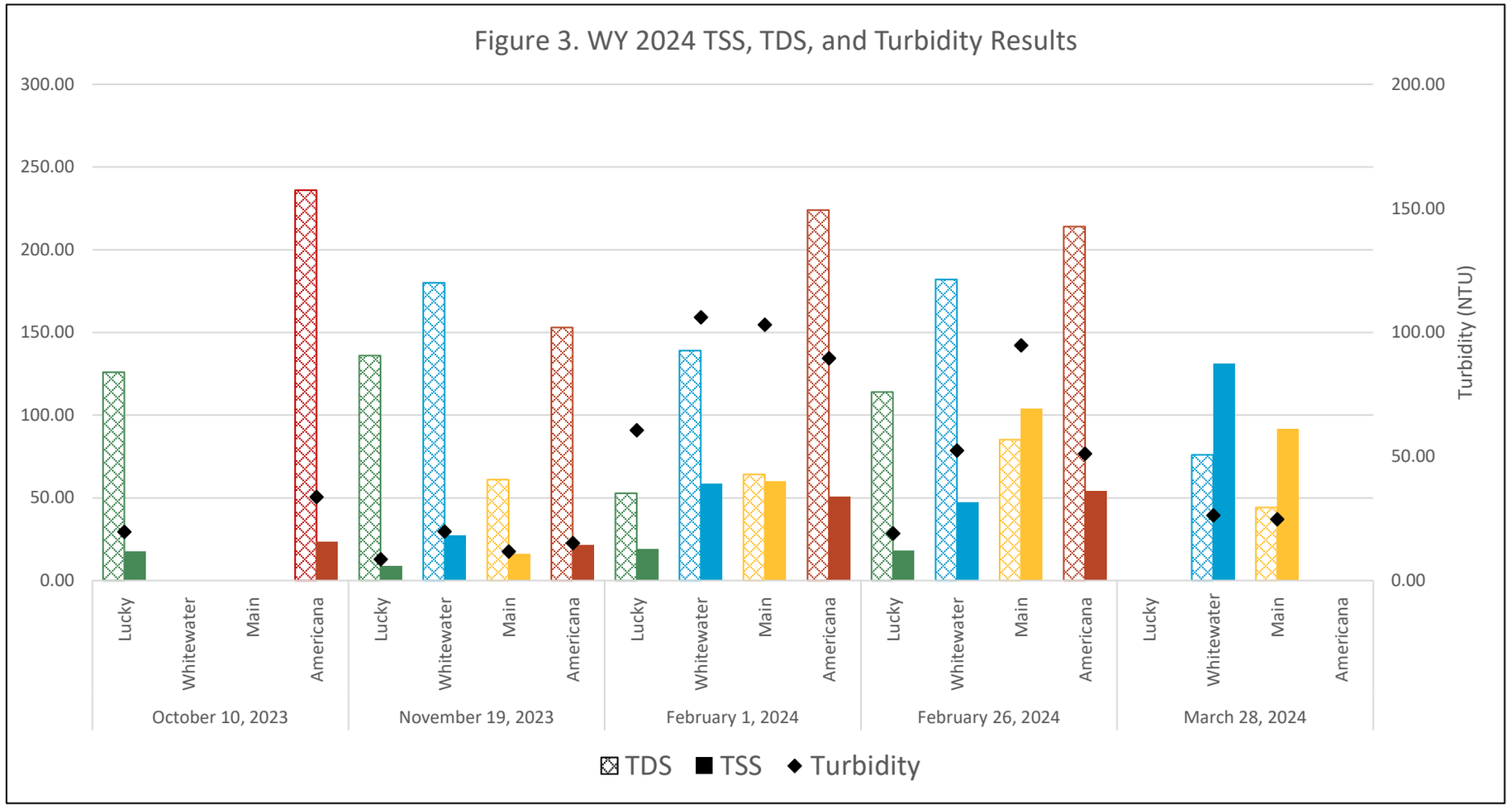
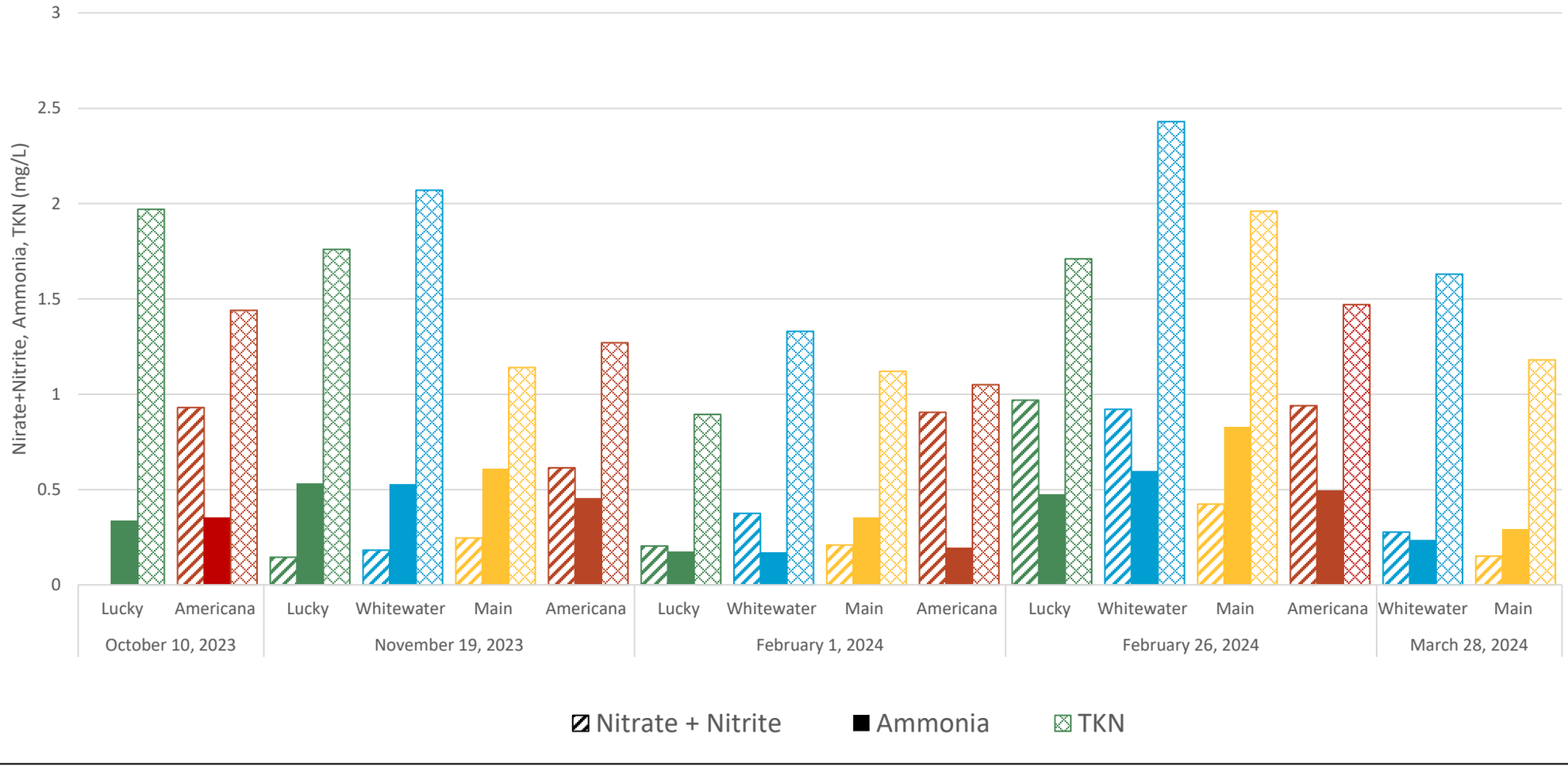


Figure 3. WY 2024 TSS, TDS, and Turbidity Results
300.00
250.00
200.00
150.00
100.00
50.00
0.00
200.00
150.00
100.00
50.00
0.00
Turbidity (NTU)
Lucky
Whitewater
Main
Americana
October 10, 2023
November 19, 2023
February 1, 2024
February 26, 2024
March 28, 2024
TDS
TSS
Turbidity

Figure 4. WY 2024 Nitrate + Nitrite, Ammonia, and TKN Results



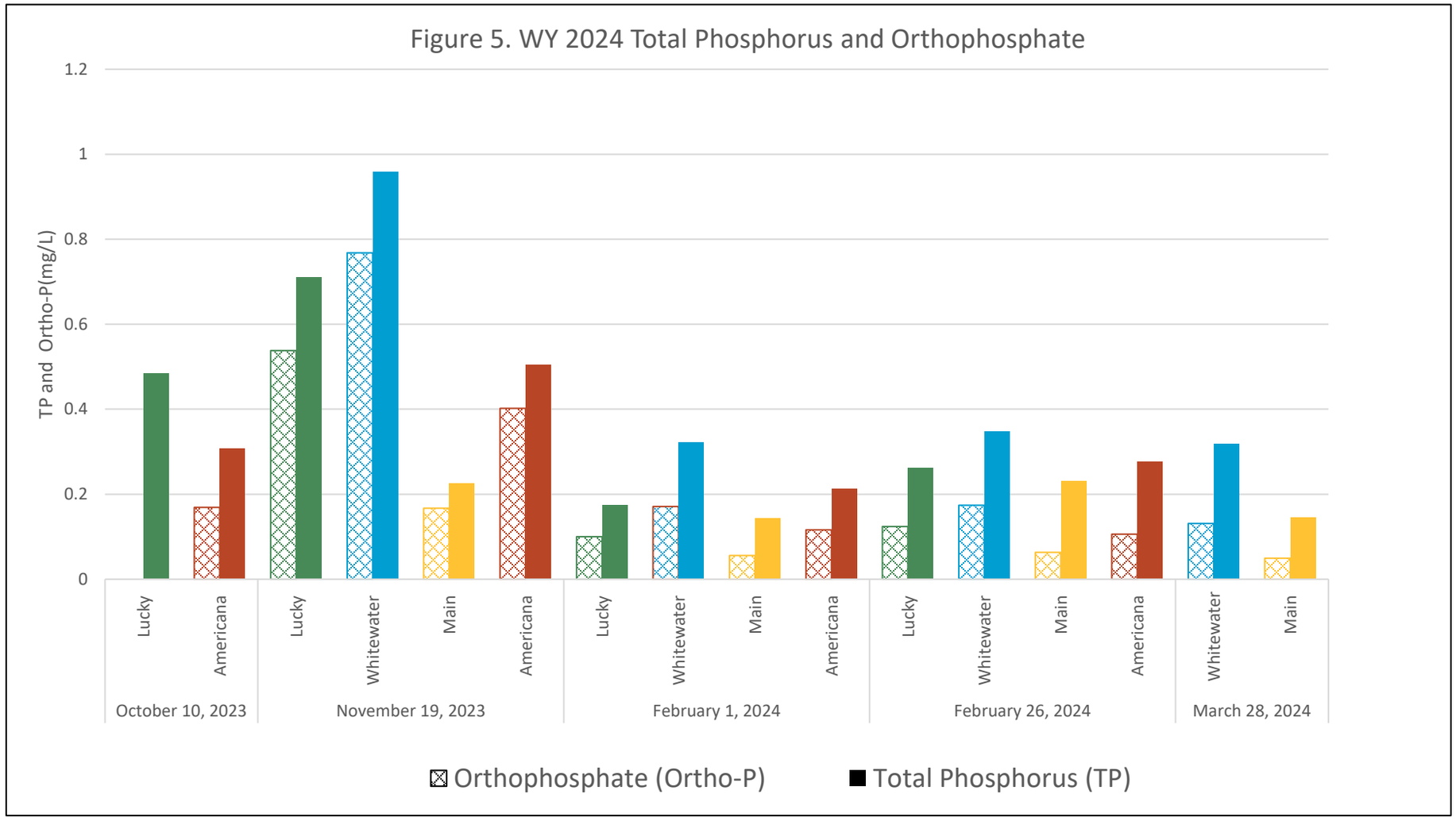


Figure 5. WY 2024 Total Phosphorus and Orthophosphate
TP and Ortho-P(mg/L)
1.2
1
0.8
0.6
0.4
0.2
0
Lucky
Americana
Lucky
Whitewater
Main
Americana
Lucky
Whitewater
Main
Americana
Lucky
Whitewater
Main
Americana
Whitewater
Main
October 10, 2023
November 19, 2023
February 1, 2024
February 26, 2024
March 28, 2024
Orthophosphate (Ortho-P)
Total Phosphorus (TP)

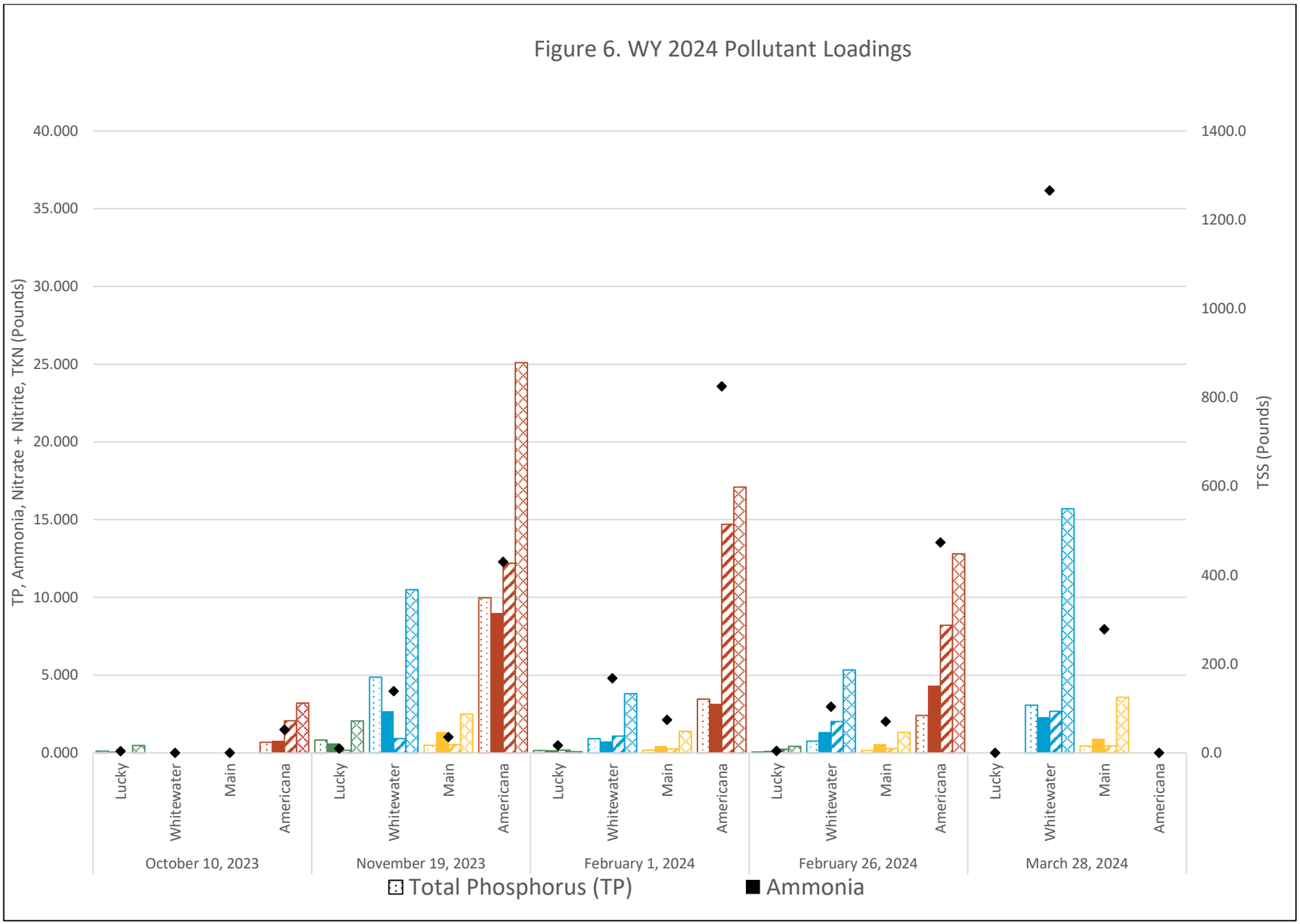
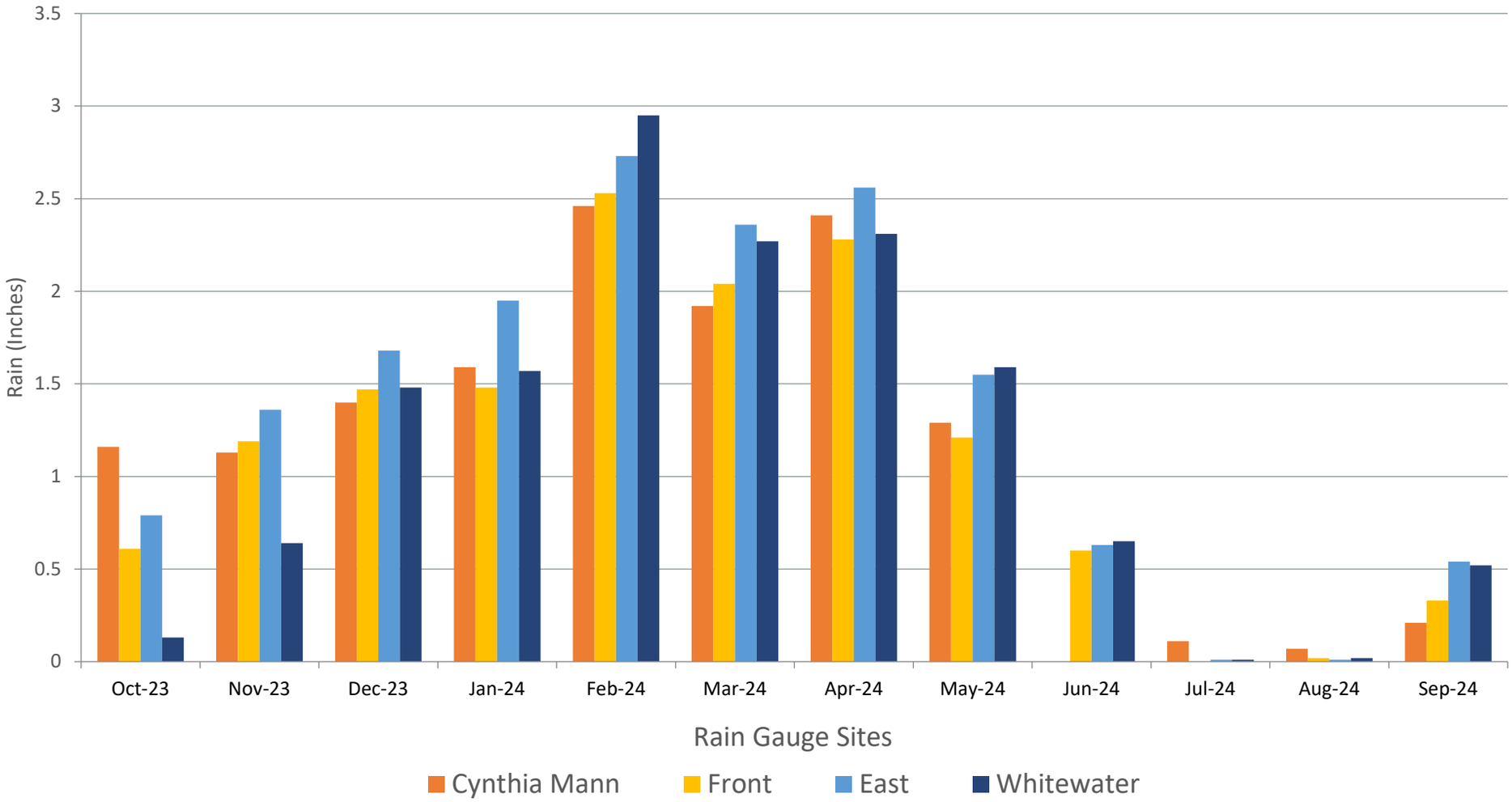


Figure 6. WY 2024 Pollutant Loadings
TP, Ammonia, Nitrate + Nitrite, TKN (Pounds)
TSS (Pounds)
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.0
Lucky
Whitewater
Main
Americana
October 10, 2023
November 19, 2023
February 1, 2024
February 26, 2024
March 28, 2024
Total Phosphorus (TP)
Ammonia

Figure 7. WY 2024 Monthly Precipitation



Appendix B: Tables

Table 1. Monitored Storms and Samples Collected					
Event Date	Sampling Information	Lucky	Whitewater	Main	Americana
October 10, 2023	Grab samples collected and submitted?	YES	YES	NO	YES
	Composite samples collected and submitted?	YES	NO	NO	YES
	Trigger volume	2,895 gal	800 ft^3	–	2,960 ft^3
	Sampler enable condition (in)	Level > 3.02	Level > 2.60	–	Level > 5.1
	Percent of storm flow sampled	63%	–	–	71% [a]
	Composite sample duration (hrs.)	2	–	–	5
	Storm precipitation (in)	0.18	0.13	0.10	0.10/0.18
November 19, 2023	Grab samples collected and submitted?	YES	YES	YES	YES
	Composite samples collected and submitted?	YES	YES	YES	YES
	Trigger volume	2,895 gal	800 ft^3	3,411 gal	2,960 ft^3
	Sampler enable condition (in)	–	Level > 1.9	–	Level > 6.96
	Percent of storm flow sampled	94%	91%	80%	79%
	Composite sample duration (hrs.)	11	13	13.5	12.5
	Storm precipitation (in)	0.42	0.61	0.50	0.50/0.58
February 1, 2024	Grab samples collected and submitted?	YES	YES	YES	YES
	Composite samples collected and submitted?	YES	YES	YES	YES
	Trigger volume	7,899 gal	2,185 ft^3	9,313 gal	8,071 ft^3
	Sampler enable condition (in)	Level > 2.68	Level > 2.55 [b]	Level > 2.06	Level > 6.46
	Percent of storm flow sampled	90%	104% [c]	89%	83%
	Composite sample duration (hrs.)	14.5	40 [b]	13	13.5
	Storm precipitation (in)	0.31	0.33	0.31	0.31/0.37
February 26, 2024	Grab samples collected and submitted?	YES	YES	YES	YES
	Composite samples collected and submitted?	YES	YES	YES	YES
	Trigger volume	2,895 gal	800 ft^3	3,411 gal	2,960 ft^3
	Sampler enable condition (in)	Level > 2.72	Level > 3.05	Level > 1.87	Level > 7.59
	Percent of storm flow sampled	90%	87%	103% [c]	83%
	Composite sample duration (hrs.)	6.5	9.5	17 [b]	7
	Storm precipitation (in)	0.13	0.21	0.18	0.18/0.18
March 28, 2024	Grab samples collected and submitted?	NO	NO	YES	YES
	Composite samples collected and submitted?	NO	YES	YES	NO
	Trigger volume	–	800 cf	3,411 gal	–
	Sampler enable condition (in)	–	Level > 3.3	Level > 1.84	–
	Percent of storm flow sampled	–	82%	77%	–
	Composite sample duration (hrs.)	–	13	11	–
	Storm precipitation (in)	0.53	0.59	0.53	0.53/0.56

Notes:

-- = No data.

[a] Flow data rejected due to area-velocity sensor errors. The EPA runoff calculation was used to estimate the total and sampled event runoff.

[b] Programming error occurred at setup.

[c] Non-stormwater samples were collected prior to the start of storm precipitation or runoff.

Table 2. Field Parameter Results					
Event Date	Monitoring Station	Field Parameters			
		Dissolved Oxygen	pH	Conductivity	Temperature
		mg/L	S.U.	µS/cm	C
October 10, 2023	Lucky	7.38	5.66	81.35	16.47
	Whitewater	7.65	6.28	95.09	17.17
	Main	–	–	–	–
	Americana	8.4	6.53	247.08	16.78
November 19, 2023	Lucky	5.09	7.27	506.44	15.7
	Whitewater	5.82	7.34	460.32	12.96
	Main	9.48	7.64	174.43	10.54
	Americana	_ [3J]	_ [3J]	_ [3J]	14.16
February 1, 2024	Lucky	4.92	7.15	593.29	14.62
	Whitewater	8.42	7.60	287.02	11.10
	Main	10.11	8.03	353.6	6.30
	Americana	10.05	7.73	552.2	8.34
February 26, 2024	Lucky	9.89	8.27	125.9	4.75
	Whitewater	10.88	7.74	749.2	5.97
	Main	9.79	7.94	165.88	9.53
	Americana	10.54	7.53	470.55	8.74
March 28, 2024	Lucky	–	–	–	–
	Whitewater	–	–	–	–
	Main	10.02	7.82	116.08	10.91
	Americana	10.57	7.28	255.40	9.79

Notes:

– = No data.

[3J] Incomplete field parameter collection on the grab sample data form due to field error.

Table 3. Analytical Results Summary

Event Date	Monitoring Station	Sample ID	Analytical Parameters																		
			E. coli	BOD_5	COD	Hardness as CaCO3	Turbidity	TSS	TDS	Total Phosphorus (TP)	Orthophosphate (Ortho-P)	Ammonia	Nitrate + Nitrite	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
			MPN/100 mL	mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
October 10, 2023	Lucky	231010-03-WG/WC	2720	17.5 [1J]	83 [1J]	47.2 [1J]	19.6 [1J]	17.4 [1J]	126 [1J]	0.485 [1J]	–	0.336 [1J]	–	1.97 [1J]	2.6 [1J]	–	0.035 [1J]	–	–	0.65 [1J]	0.0118 [1J]	–
	Whitewater	231010-11-WG	1990	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Main	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Americana	231010-14-WG/WC	129.6	19.7 [2J]	77 [2J]	< 0.100 [2J]	33.6 [2J]	23.6 [2J]	236 [2J]	0.308 [2J]	0.169 [2J]	0.353 [2J]	0.930 [2J]	1.44 [2J]	5.5 [2J]	0.021 [2J]	0.072 [2J]	8.2 [2J]	0.095 [2J]	2.4 [2J]	< 0.0100 [2J]	22.0 [2J]
November 19, 2023	Lucky	231119-03-WG/WC	2.0	59.5	137	35.8	8.6	8.63	136	0.710	0.538	0.530	0.145	1.76	0.93	0.012	0.030	3.5	0.085	0.33	< 0.0100	32.7
	Whitewater	231119-11-WG/WC	99.0	61.9	167	45.0	19.7	27.3	180	0.958	0.768	0.527	0.182	2.07	1.7	< 0.0100	0.041	5.0	0.21	2.2	< 0.0100	32.3
	Main	231119-12-WG/WC	30.9	19.9	61.0	19.3	11.7	16.2	61.0	0.226	0.167	0.610	0.246	1.14	0.66	0.015	0.045	2.7	0.12	1.7	< 0.0100	25.9
	Americana	231119-14-WG/WC	1340.0	36.5	94.0	57.8	15.0	21.7	153	0.504	0.402	0.454	0.614	1.27	2.1	0.022	0.061	4.0	0.11	1.9	< 0.0100	27.2
February 1, 2024	Lucky	240201-03-WG/WC	< 1.0 [4J]	7.27	39.0	16.0	60.5	18.8	52.8	0.174	0.100	0.173	0.204	0.894	0.85	< 0.0100	0.024	2.0	0.056	0.82	< 0.0100	17.5
	Whitewater	240201-11-WG/WC	68.9 [4J]	9.34 [1R]	82 [1R]	43 [1R]	106 [1R]	58.4 [1R]	139 [1R]	0.321 [1R]	0.171 [1R]	0.169 [1R]	0.375 [1R]	1.33 [1R]	2.4 [1R]	< 0.0100 [1R]	0.058 [1R]	3.9 [1R]	0.18 [1R]	4.8 [1R]	0.0148 [1R]	25.7 [1R]
	Main	240201-12-WG/WC	238.2 [4J]	5.74	77.0	18.3	103	59.8	64.2	0.143	0.0557	0.351	0.209	1.12	1.4	0.012	0.066	3.6	0.084	4.1	0.0112	18.4
	Americana	240201-14-WG/WC	65.0 [4J]	6.98	55.0	93.3	89.6	50.7	224	0.213	0.116	0.193	0.905	1.05	3.4	0.016	0.063	3.4	0.090	4.2	< 0.0100	17.3
February 26, 2024	Lucky	240226-03-WG/WC	37.9	13.5	60.0	53.2	18.9	18.1	114	0.262	0.124	0.476	0.969	1.71	2.6	4.5	0.031	4.5	0.028	0.72	0.0150	13.5
	Whitewater	240226-11-WG/WC	38.3	12.6	84.0	77.8	52.3	47.3	182	0.347	0.174	0.596	0.921	2.43	2.6	0.014	0.062	4.4	0.093	3.8	0.0151	24.5
	Main	240226-12-WG/WC	24.3	13.9 [5J]	119 [5J]	29.8 [5J]	94.7 [5J]	104 [5J]	85.2 [5J]	0.231 [5J]	0.0631 [5J]	0.829 [5J]	0.424 [5J]	1.96 [5J]	1.5 [5J]	0.032 [5J]	0.13 [5J]	5.6 [5J]	0.12 [5J]	6.1 [5J]	0.0191 [5J]	51.7 [5J]
	Americana	240226-14-WG/WC	125.9	12.6	85.0	102	51.1	54.3	214	0.276	0.106	0.496	0.940	1.47	3.3	0.021	0.097	4.0	0.063	3.9	0.0148	24.3
March 28, 2024	Lucky	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Whitewater	240328-11-WC	–	8.20	84.0	31.9	26.2	131	76.0	0.318	0.131	0.236	0.277	1.63	2.0	< 0.0100	0.074	1.9	0.097	5.8	0.0151	9.80
	Main	240328-12-WG/WC	21.6	5.03	104	12.6	24.6	91.7	44.2	0.145	0.0494	0.293	0.151	1.18	1.1	< 0.0100	0.071	2.3	0.068	5.9	0.0171	14.7
	Americana	240328-14-WG	365.4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Notes:

– = No data.

[1J] Data qualified due to lack of representativeness (50%–75%).

[2J] Data qualified due to lack of representativeness (50%–75%) of the calculated flow volume.

[4J] *E. coli* sample qualified due to exceeded hold time.

[5J] Composite sample qualified due to non-stormwater sample volume comprising less than 10% of the total composite sample volume.

[1R] Composite sample rejected due to non-stormwater sample volume comprising 10% or more of the total composite sample volume.

WG = Wet grab sample.

WC = Wet composite sample.

Table 4. Event Loading for Monitored Drainages in Pounds						
Event Date	Monitoring Station	TSS	Total Phosphorus	Ammonia	Nitrate + Nitrite	TKN
October 10, 2023	Lucky	4.20 [1J]	0.118 [1J]	0.0810 [1J]	–	0.477 [1J]
	Whitewater	–	–	–	–	–
	Main	–	–	–	–	–
	Americana	52.6 [2J]	0.686 [2J]	0.786 [2J]	2.07 [2J]	3.21 [2J]
November 19, 2023	Lucky	10.1	0.832	0.621	0.170	2.06
	Whitewater	139	4.87	2.68	0.926	10.5
	Main	35.5	0.496	1.34	0.540	2.50
	Americana	430	9.98	8.99	12.2	25.1
February 1, 2024	Lucky	16.9	0.157	0.156	0.184	0.805
	Whitewater	168 [1R]	0.92 [1R]	0.750 [1R]	1.08 [1R]	3.81 [1R]
	Main	74.4	0.178	0.437	0.260	1.39
	Americana	825	3.46	3.140	14.7	17.1
February 26, 2024	Lucky	4.48	0.0648	0.118	0.240	0.423
	Whitewater	104	0.762	1.31	2.02	5.34
	Main	70.6 [5J]	0.157 [5J]	0.563 [5J]	0.288 [5J]	1.33 [5J]
	Americana	474	2.41	4.33	8.21	12.8
March 28, 2024	Lucky	–	–	–	–	–
	Whitewater	1266	3.07	2.28	2.68	15.7
	Main	278.2	0.440	0.889	0.458	3.58
	Americana	–	–	–	–	–

Notes:

-- = No data

[1J] Data qualified due to lack of representativeness (50%–75%).

[2J] Data qualified due to lack of representativeness (50%–75%) of the calculated flow volume.

[5J] Composite sample qualified due to non stormwater sample volume comprising less than 10% of the total composite sample volume.

[1R] Composite sample rejected due to non stormwater sample volume comprising 10% or more of the total composite sample volume.

Table 5. Event Loading in Pounds/Acre						
Event Date	Monitoring Station	TSS	Total Phosphorus	Ammonia	Nitrate + Nitrite	TKN
October 10, 2023	Lucky	0.0400 [1J]	0.00112 [1J]	0.00771 [1J]	–	0.00454 [1J]
	Whitewater	–	–	–	–	–
	Main	–	–	–	–	–
	Americana	0.0601 [2J]	0.000784 [2J]	0.000898 [2J]	0.00237 [2J]	0.00367 [2J]
November 19, 2023	Lucky	0.0962	0.00792	0.00591	0.00162	0.0196
	Whitewater	0.279	0.00978	0.00538	0.00186	0.0211
	Main	0.449	0.00628	0.0170	0.00684	0.0316
	Americana	0.491	0.0114	0.0103	0.0139	0.0287
February 1, 2024	Lucky	0.161	0.00150	0.00149	0.00175	0.00767
	Whitewater	0.337 [1R]	0.00185 [1R]	0.00151 [1R]	0.00217 [1R]	0.00765 [1R]
	Main	0.942	0.00225	0.00553	0.00329	0.0176
	Americana	0.943	0.00395	0.00359	0.0168	0.0195
February 26, 2024	Lucky	0.043	0.000617	0.00112	0.00229	0.00403
	Whitewater	0.209	0.00153	0.00263	0.00406	0.0107
	Main	0.894 [5J]	0.00199 [5J]	0.00713 [5J]	0.00365 [5J]	0.0168 [5J]
	Americana	0.542	0.00275	0.00495	0.00938	0.0146
March 28, 2024	Lucky	–	–	–	–	–
	Whitewater	2.54	0.00616	0.00458	0.00538	0.0315
	Main	3.52	0.00557	0.0113	0.00580	0.0453
	Americana	–	–	–	–	–

Notes:

-- = No data.

[1J] Data qualified due to lack of representativeness (50%–75%).

[2J] Data qualified due to lack of representativeness (50%–75%) of the calculated flow volume.

[5J] Composite sample qualified due to non stormwater sample volume comprising less than 10% of the total composite sample volume.

[1R] Composite sample rejected due to non stormwater sample volume comprising 10% or more of the total composite sample volume.

Table 6. QC Sample Summary

Event Date	Parent Sample	Sample ID	QC Sample Type	Analytical Parameters																		
				E. coli	BOD_5	COD	Hardness as $CaCO_3$	Turbidity	TSS	TDS	Total Phosphorus	Orthophosphate (Ortho-P)	Ammonia	Nitrate + Nitrite	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
				MPN/100 mL	mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
November 19, 2023	Americana grab	231119-14-001	Field blank	< 1.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Americana grab	231119-14-101	Field duplicate	866.4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Calculated parent/duplicate RPD			**4%**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
February 1, 2024	Lucky grab	240201-03-001	Field blank	< 1.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Lucky grab	240201-03-101	Field duplicate	2 [4J]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Calculated parent/duplicate RPD			**100%**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Whitewater Composite	240201-11-103	Lab duplicate/composite split	–	8.9	83.0	42.4	113	53.8	140	0.312	0.172	0.170	0.378	1.35	2.4	0.011	0.052	3.7	0.19	4.9	0.0127	26.6
February 26, 2024	Main grab	240226-12-001	Field blank	< 1.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Main grab	240226-12-101	Field duplicate	26.9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Calculated parent/duplicate RPD			**2%**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
March 28, 2024	Main grab	240328-12-001	Field blank	< 1.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Main grab	240328-12-101	Field duplicate	17.3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Calculated parent/duplicate RPD			**5%**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	–	240328-14-002	Field blank composite	–	< 2.00	< 7.00	< 0.100	< 0.3	< 0.900	< 20.0	< 0.0120	< 0.003	< 0.0450	< 0.0250	< 0.100	< 0.0700	< 0.0100	< 0.0100	< 0.150	–	< 0.0100	< 0.0100	< 0.500
September 9, 2024	–	240909-03-003	Equipment blank	–	< 2.00	< 7.00	< 0.100	< 0.3	< 0.900	< 25.0	< 0.0120	< 0.003	< 0.0450	< 0.0250	< 0.100	< 0.0500	< 0.0100	< 0.0200	0.59	< 0.0100	< 0.0100	< 0.0100	1.3
September 10, 2024	–	240910-14-004	Rinsate blank	–	< 2.00	< 7.00	< 0.100	< 0.3	1.00	< 25.0	< 0.0120	< 0.003	< 0.0450	< 0.0250	< 0.100	< 0.0500	< 0.0100	< 0.0200	0.91	< 0.0100	0.026	< 0.0100	1.3
	–	240910-14-003	Equipment blank	–	< 2.00	< 7.00	< 0.100	< 0.3	< 0.900	< 25.0	< 0.0120	< 0.003	< 0.0450	< 0.0250	< 0.100	< 0.0500	< 0.0100	< 0.0200	0.93	< 0.0100	< 0.0100	< 0.0100	4.0
	–	240910-11-003	Rinsate blank	–	< 2.00	< 7.00	< 0.100	< 0.3	< 0.900	< 25.0	< 0.0120	0.00795	< 0.0450	< 0.0250	< 0.100	< 0.0500	< 0.0100	< 0.0200	0.38	< 0.0100	0.017	< 0.0100	< 0.500
	–	240910-11-003	Equipment blank	–	< 2.00	< 7.00	< 0.100	< 0.3	< 0.900	< 25.0	< 0.0120	< 0.003	< 0.0450	< 0.0250	< 0.100	< 0.0500	< 0.0100	< 0.0200	0.59	< 0.0100	< 0.0100	< 0.0100	2.5
September 17, 2024	–	240917-12-004	Rinsate blank	–	< 2.00	< 7.00	< 0.100	< 0.3	< 0.900	< 25.0	< 0.0120	< 0.003	< 0.0450	< 0.0250	< 0.100	< 0.0500	< 0.0100	< 0.0200	0.20	< 0.0100	< 0.0100	< 0.0100	1.1
	–	240917-12-003	Equipment blank	–	< 2.00	< 7.00	< 0.100	< 0.3	< 0.900	< 25.0	< 0.0120	< 0.003	< 0.0450	< 0.0250	< 0.100	< 0.0500	< 0.0100	< 0.0200	1.4	< 0.0100	0.023	< 0.0100	1.7
Allowable RPD				40%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%

– = No data.

[4J] *E. coli* sample qualified due to exceeded hold time.

Cells highlighted in gray are flagged for discussion.

Appendix C: Storm Event Reports

Storm Event Report No. 1: October 10, 2023

Storm Event Report No. 2: November 19, 2023

Storm Event Report No. 3: February 1, 2024

Storm Event Report No. 4: February 26, 2024

Storm Event Report No. 5: March 28, 2024

Technical Memorandum

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Prepared for: Ada County Highway District

Project Title: NPDES Phase I Stormwater Support WY 2024

Project No.: 159103

Technical Memorandum

Subject: ACHD Phase I Storm Event Report for October 10, 2023

Date: February 14, 2024

To: Monica Lowe

Cc: Steven Turner

Kristen Chisholm

From: Zuly Lapa, Project Engineer

Prepared by: Zuly Lapa, EIT, Project Engineer

Reviewed by: Melissa Jannusch, PE, Project Manager

Section 1: Introduction

The Environmental Protection Agency Region 10 reissued a Municipal Separate Storm Sewer System Phase I National Pollutant Discharge Elimination System Permit (NPDES Permit), effective October 1, 2021, to Ada County Highway District (ACHD), Boise City, Ada County Drainage District No. 3, Idaho Transportation Department District 3, Boise State University, and Garden City. Under the NPDES Permit, Permittees are required to continue to conduct wet weather stormwater outfall monitoring and subwatershed monitoring. Four outfall monitoring sites (Lucky, Whitewater, Main, and Americana) and one subwatershed monitoring site (AS_6) have been established. The AS_6 site represents a subwatershed located within the Americana watershed. At each site, a minimum of three composite and three grab samples will be collected during Water Year (WY) 2024 (October 1, 2023, through September 30, 2024). The following storm event report summarizes stormwater sampling results from the October 10, 2023, storm event.

Section 2: Project Status

Table 2-1 is a summary of the sample types collected to date for WY 2024 Phase I Stormwater Outfall Monitoring. When samples are qualified, additional samples will be attempted from subsequent storms to collect unqualified samples.

Table 2-1. WY 2024 Samples Collected

Date	Lucky	Whitewater	Main	Americana	AS_6
October 10, 2023	G, C[1,2]	G	--	G, C[3]	--
Unqualified Samples:	1G	1G	--	1G	--
Samples Remaining:	2G, 3C	2G, 3C	3G, 3C	2G, 3C	3G, 3C

Notes:

-- = no samples taken

C = composite sample

G = grab sample

[1] Composite samples qualified due to lack of representativeness (50% – 75%).

[2] Incomplete water quality analysis due to low composite sample volume.

[3] Composite samples qualified due to lack of representativeness (50% – 75%) of the calculated flow volume.

Section 3: Storm Event Summary

The October 10, 2023, storm event and the subsequent preparation and sampling efforts are detailed in the following sections.

3.1 Storm Detail

A summary of the forecast on which monitoring decisions were based is detailed below. The sampling event communication form that describes the forecast and summarizes the decision-making process from October 10, 2023, is included in Attachment A for reference.

Tuesday, October 10, 2023 – Wednesday, October 11, 2023

- On the morning of October 10, the National Weather Service issued a forecast for widespread rain in the Boise area, starting October 10 at 1800 and ending on October 11 at 0600. The chance of precipitation was 80%, with 0.10 to 0.20 inches of precipitation forecasted.
- Setup was accomplished early morning of October 10. An expected precipitation depth of 0.11 inches was used to set trigger volumes at monitoring stations. A runoff calculations worksheet showing how the trigger volumes were calculated is included in Attachment A.
- The runoff started approximately on October 10 at 1216 and ended on October 11 at 2300. There was a runoff break in between October 10 at 0936 and October 11 at 0738.
- Precipitation totals ranged between 0.10 and 0.18 inches at local rain gauges.

Flow measurements and precipitation data are listed in Table 1 along with a sampling summary. Hydrograph for the Lucky, Whitewater, and Americana site showing flow, rain, and sample collection data are included in Attachment B.

3.2 Sampling Summary

Lucky, Whitewater, Americana and AS_6 monitoring stations were set up on October 10, 2023, to collect flow-proportional composite samples during the storm. Sampler enable conditions were programed into the Lucky, Whitewater, and Americana flowmeters. A site-specific velocity cutoff value was programmed into the AS_6 flowmeter. Setup and sampling information are included in Table 1. The field forms completed during setup/shutdown and sampling are included in Attachment C.

Grab Samples

Two, two-member team mobilized to collect stormwater runoff grab samples and verify operation of the automatic sampling equipment on October 10 at 1823. Grab samples for Lucky, Whitewater and Americana were submitted to the West Boise Water Quality Lab (WQL) at 2003 on October 10. Results for grab samples, including field parameter and analytical data, are included in Table 2. Laboratory analytical reports are included in Attachment D.

Composite Samples

Composite samples were collected at the Lucky and Americana monitoring station and submitted to the West Boise WQL at 1242 on October 11. Whitewater collected two composite samples and was not submitted to the WQL. A partial water quality analysis was conducted on the Lucky composite samples due to low composite sample volume. The volume of the Americana composite sample was sufficient for analysis of all parameters. Analytical results are shown in Table 2 and pollutant loading estimates for the event are detailed in Table 3. Laboratory analytical reports are included in Attachment D.

Section 4: Quality Assurance/Quality Control

No quality control samples were collected during the October 10, 2023, storm event.

Data quality objectives for this storm were evaluated and tracked using the data validation review checklist included in Attachment A. An accepted composite sample represents at least 75 percent of the total discharge or at least 6 hours of the storm duration. The composite sample collected at Lucky was qualified because it represented 63% of the storm runoff and lasted approximately 2 hours. The composite sample collected at Americana was calculated using the EPA runoff calculation. After thorough flow and precipitation data review, it was determined that the area-velocity sensor showed inaccurate flow level readings and did not align with the precipitation data. The EPA runoff calculation estimates the total event runoff and sampled

runoff values based on impervious surface of the drainage basin (see Figure 4-1 for EPA's runoff calculation equation). Based on the estimated values, approximately 71% of the total storm runoff was sampled therefore the Americana composite samples were qualified. See Table 4-1 for total and sampled runoff calculations and Attachment B.

Runoff Calculation

$$R = P * Pj * Rv$$

Where:

R = Event Runoff (inches)

P = Event Rainfall (inches)

Pj = Fraction of annual rainfall events that produce runoff (0.9)

Rv = Runoff Coefficient

Figure 4-1: EPA Runoff Calculation

Table 4-1. Total and Sample Runoff Calculations

From Table 2-1 of the Stormwater Outfall Monitoring Plan:					
Americana Subwatershed Area =	875 acres				
Percent Impervious Groundcover =	39 %				
Impervious Groundcover =	481 acres				
Total Runoff from the Americana Watershed:			Sampled Runoff from the Americana Site:		
P =	0.14	inches	P =	0.1	inches
Pj =	0.9		Pj =	0.9	
Rv =	0.39		Rv =	0.39	
R =	0.049	inches	R =	0.035	inches
Calculated Sampled Runoff Precipitation					
Sampled/ Total Sampled Runoff x 100 =	71%				

The acceptance and performance criteria for analytical and non-analytical criteria, except for Lucky and Americana composite samples, were met for this storm event.

Section 5: Notes and Recommendations

Americana

During set-up, a "Replace pump tubing" warning message was encountered when the sampler program was started. The ISCO Operating Manual was used to reset the program settings and reset the pump count. The message did not appear again when the sampler program was restarted.

Main

During set-up, the Main flow meter was providing positive flow readings, but no flow was observed in the storm drain pipe. The flow module was replaced, but this did not resolve the issue. Therefore, the Main site was not targeted at this event.

Data Tables

Table 1. Sampling and Flow Summary					
	Lucky	Whitewater	Main	Americana	AS_6
Grab samples collected and submitted?	YES	YES	NO	YES	NO
Composite samples collected and submitted?	YES	NO	NO	YES	NO
Trigger volume (gal or ft^3)	2,895 gal	800 ft^3	--	2960 ft^3	221 ft^3
Velocity cutoff (fps)	--	--	--	--	0.02
Sampler enable condition (in)	Level > 3.02"	Level > 2.60"	--	Level > 5.1"	--
Runoff start time	1216 [1]	1407 [1]	--	1602 [2]	--
Grab sample collection time	1829	1904	--	1823	--
Composite sample stop time	0906	--	--	1150	--
Runoff stop time	1110 [2]	2300 [2]	--	1630 [2]	--
Volume of Discharge Sampled (ft^3)	2,439	--	--	111,486 [2,3]	--
Total runoff volume (ft^3)	3,882	5,838	--	156,081 [2,3]	--
Percent of storm flow sampled (%)	63%	--	--	71% [3]	--
Composite sample duration (hrs)	2	--	--	5	--
Storm Precipitation (in)	0.18	0.13	0.10	0.10/0.18	0.10/0.18
Referenced Rain Gauge	Cynthia Mann	Whitewater	Front	Front/East	Front/East
Sampler messages (counts): Success	8	2	--	11	--
Number of composite bottles filled	1	--	--	1	--
Composite sample volume (Approx.; ml)	5,000	--	--	5,750	--

Notes:

[1] Runoff started on 10/10/23.

[2] Runoff ended on 10/11/23.

[3] Flow data rejected due to area-velocity sensor errors . The EPA runoff calculation was used to estimate the total and sampled event runoff.

Table 2. Field and Analytical Data Summary

Monitoring Station	Sample Date	Sample ID Grab	Field Parameters				Analytical Parameters																						
			Dissolved Oxygen	pH	Conductivity	Temperature	E. coli	Sample ID Composite	BOD_5	COD	Hardness as $CaCO_3$	Turbidity	TSS	TDS	Total Phosphorus	Orthophosphate as P	Ammonia as N	Nitrate + Nitrite as N	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
			mg/L	S.U.	uS/cm	C	mpn/100 mL		mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Lucky	10/10/2023	231010-03-WG	7.38	5.66	81.35	16.47	2720.0	231010-03-WC	17.5 [1J]	83 [1J]	47.2 [1J]	19.6 [1J]	17.4 [1J]	126 [1J]	0.485 [1J]	--	0.336 [1J]	--	1.97 [1J]	2.6 [1J]	--	0.035 [1J]	--	--	0.65 [1J]	0.0118 [1J]	--
Whitewater	10/10/2023	231010-11-WG	7.65	6.28	95.09	17.17	1990.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Main	10/10/2023	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Americana	10/10/2023	231010-14-WG	8.4	6.53	247.08	16.78	129.6	231010-14-WC	19.7 [2J]	77 [2J]	<0.100 [2J]	33.6 [2J]	23.6 [2J]	236 [2J]	0.308 [2J]	0.169 [2J]	0.353 [2J]	0.930 [2J]	1.44 [2J]	5.5 [2J]	0.021 [2J]	0.072 [2J]	8.2 [2J]	0.095 [2J]	2.4 [2J]	<0.0100 [2J]	22.0 [2J]
AS_6	10/10/2023	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

- = No data.

[1J] Data qualified due to lack of representativeness (50% - 75%).

[2J] Data qualified due to lack of representativeness (50% - 75%) of the calculated flow volume.

Table 3. Event Pollutant Loading Estimates in Pounds						
Monitoring Station	Event Date	TSS	Total Phosphorus	Ammonia as N	Nitrate + Nitrite as N	TKN
Lucky	10/10/2023	4.20 [1J]	0.118 [1J]	0.0810 [1J]	--	0.477 [1J]
Whitewater	10/10/2023	--	--	--	--	--
Main	10/10/2023	--	--	--	--	--
Americana	10/10/2023	52.6 [2J]	0.686 [2J]	0.786 [2J]	2.07 [2J]	3.21 [2J]
AS_6	10/10/2023	--	--	--	--	--

Notes:

– = No data.

[1J] Data qualified due to lack of representativeness (50% - 75%).

[2J] Data qualified due to lack of representativeness (50% - 75%) of the calculated flow volume.

Attachment A: Supplemental Documents

Sampling Event Communication Form

Data Validation Checklist

Runoff Calculation Worksheet

SAMPLING EVENT COMMUNICATION FORM

Date: 10/10/2023	Time: 4:10 PM	Initials: ML
Is there a targeted sampling event during the next 36 hours? (Or, if it is Friday, is a targeted event expected before 5:00 PM Monday?)		Yes

Past 72 hr Precip	0.02”
Date and time of expected event	10/10/2023 6 PM – 10/11/2023 6 AM
Expected amount of precipitation	0.10” – 0.20”
Percent chance of precipitation	80%
Percent chance of >0.10” over 12 hours	71%

NWS Update

Targeted Station & Samples

Lucky	Whitewater	Main	Americana	AS_6	State (Phase II)
☒ Grab	☒ Grab	☐ Grab	☒ Grab	☒ Grab	☐ Grab
☒ Composite	☒ Composite	☐ Composite	☒ Composite	☒ Composite	☐ Composite

Type of Forecasted Precipitation

☐ Light Rain	☒ Rain	☐ Rain on Snow
☐ Scattered Showers	☒ Thunder Showers	☐ Snowmelt
☐ Other:		

Reasons for Not Targeting a Forecasted Storm and/or Stations

☐ Holiday
☐ Waiting on Antecedent Dry Period – Expires:
☒ Equipment Concerns: Problems with Main measuring flow when none present. Suspect AV sensor.
☐ Other:

Text Forecast

NWS Forecast for: Garden City ID
Issued by: National Weather Service Boise, ID
Last Update: 2:53 pm MDT Oct 10, 2023

This Afternoon: Showers likely and possibly a thunderstorm. Mostly cloudy, with a high near 68. West southwest wind around 6 mph. Chance of precipitation is 60%.
Tonight: Showers and possibly a thunderstorm. Low around 47. West southwest wind around 6 mph becoming calm. Chance of precipitation is 90%. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.
Wednesday: Showers and possibly a thunderstorm before 1pm, then a chance of showers. High near 58. West northwest wind 5 to 14 mph, with gusts as high as 23 mph. Chance of precipitation is 90%.
Wednesday Night: A 30 percent chance of showers before 1am. Patchy fog after 4am. Otherwise, cloudy, then gradually becoming partly cloudy, with a low around 42. Northwest wind 5 to 14 mph, with gusts as high as 23 mph.
Thursday: Patchy fog before 1pm. Otherwise, sunny, with a high near 63. Northwest wind 5 to 10 mph.
Thursday Night: Mostly clear, with a low around 42.
Friday: Sunny, with a high near 68.
Friday Night: Partly cloudy, with a low around 48.

Saturday: Mostly cloudy, with a high near 67.
Saturday Night: A 20 percent chance of showers after 1am. Mostly cloudy, with a low around 49.
Sunday: A 20 percent chance of showers. Partly sunny, with a high near 70.
Sunday Night: Mostly cloudy, with a low around 50.
Monday: Partly sunny, with a high near 74.
Monday Night: A 30 percent chance of showers. Mostly cloudy, with a low around 52.
Tuesday: A chance of showers. Mostly cloudy, with a high near 66.

Forecast Discussion

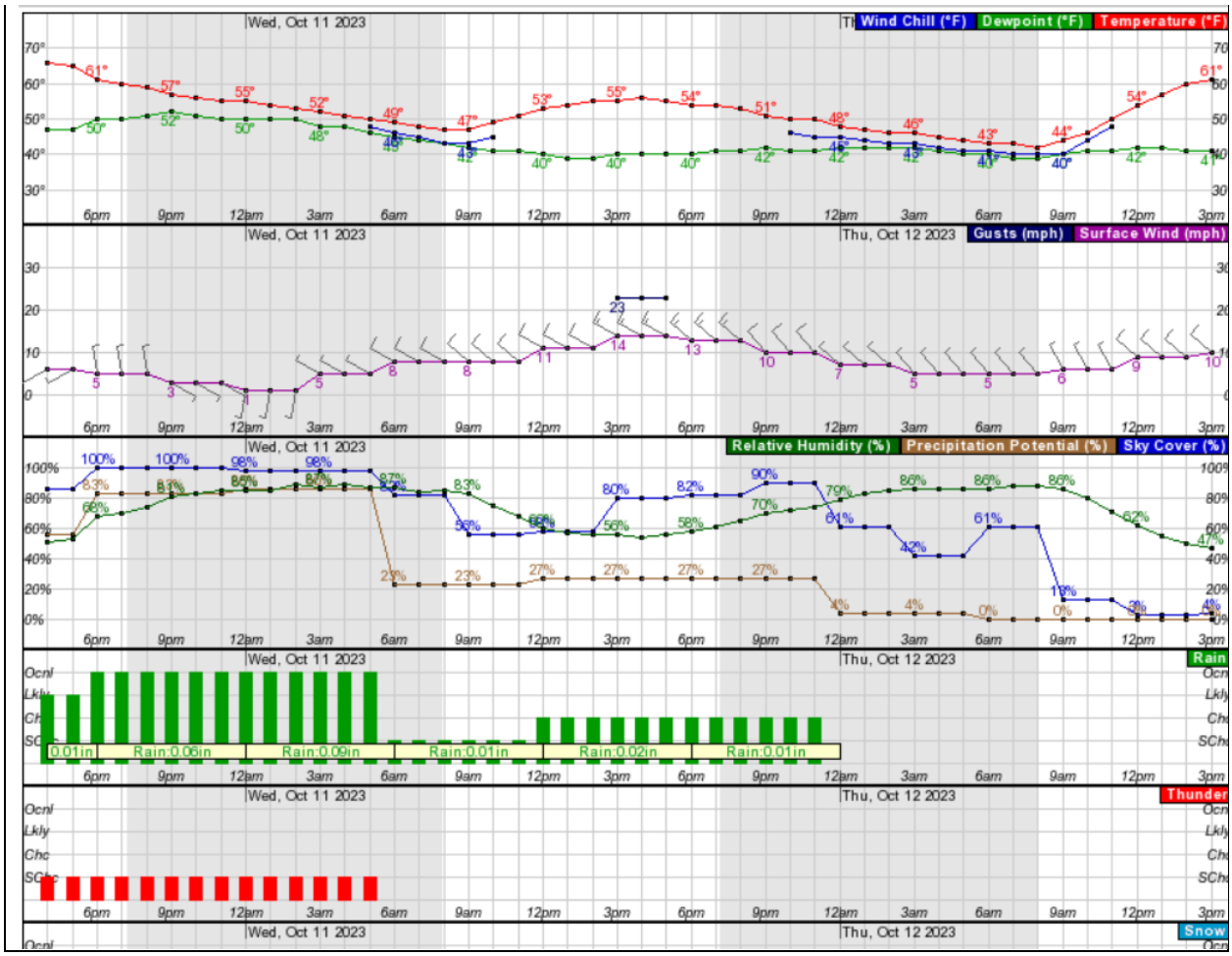
Area Forecast Discussion

National Weather Service Boise ID
233 PM MDT Tue Oct 10 2023

.SHORT TERM...Tonight through Thursday night...Showers have steadily increased through the day in eastern Oregon, and as of 2 PM MDT showers were also getting into the Treasure Valley and Weiser River Valley. No **lightning** has been observed yet, but the incoming upper **trough** is expected to provide enough **instability** later this afternoon and evening for **isolated** thunderstorms within about 50 miles either side of the OR/ID border. Showers will become widespread tonight in western Idaho, then decrease Wednesday morning except along the ID/NV border and the Boise Mountains and eastern Valley County. Total precipitation tonight through Wednesday should be .10 to .20 inch in the valleys and .25 to .50 inch in the mountains, including 1-2 inches of snow above 6500 feet **MSL**. Later Wednesday the main upper low off the northwest coast will move rapidly inland and bring another chance of showers to eastern Oregon, then into western Idaho early Wednesday evening. Late Wednesday night the low will be in eastern Wyoming and clouds will decrease in our **CWA**. Clearing skies will allow **radiational cooling** resulting in patchy **fog** in the valleys Thursday morning. Thursday afternoon and night look **mostly clear**. Winds will be light to moderate westerly tonight and Wednesday morning, then increase almost to advisory speeds Wednesday afternoon in south-central Idaho. Winds will die down rapidly Wednesday night.

.LONG TERM...Friday through Tuesday...A warming and drying trend is forecast Friday through Monday, possibly Tuesday, as another upper **ridge** builds inland from the Pacific. High temps will reach at least the mid 70s in the valleys by Monday, with a 10 percent chance of 80 degrees again. Low temps will moderate more slowly. Unfortunately, latest models bring a lot of **high clouds** in from the Pacific on Saturday which may spoil the view of the annular solar eclipse Saturday morning.

Hourly Forecast


Wed, Oct 11 2023
Thu, Oct 12 2023
Wind Chill (°F)
Dewpoint (°F)
Temperature (°F)
Gusts (mph)
Surface Wind (mph)
Relative Humidity (%)
Precipitation Potential (%)
Sky Cover (%)
Rain
Thunder
Snow
Ocnl
Lkly
Chc
SChc
0.01in
Rain:0.06in
Rain:0.09in
Rain:0.01in
Rain:0.02in
Rain:0.01in
6pm
9pm
12am
3am
6am
9am
12pm
3pm

Storm Event QA/QC Checklist – Phase I

STORM DATE 231010

A. Event and Data Completeness	Yes	No	N/A	Notes
1. Field data sheets filled out completely and clearly	X			
2. Field parameters reviewed, and any problems/issues addressed	X			WW field parameters difficult to read: verified
3. All samples collected as specified	X			DO is 7.65 mg/L + Sp. Cond. is 95.09 w/ Chad Shuyler
4. All samples delivered to lab promptly (review chain of custody rpts)	X			
5. Inconsistencies/clarifications discussed with sampling team member	X			
6. All analytical reports from lab received	X			

B. Validation and Verification Methods	Yes	No	N/A	Notes
1. Outliers and unexpected values discussed with lab			X	
2. Appropriate analytical methods used	X			
3. All lab QA samples were within method acceptance criteria	X			
4. All samples reviewed and data qualifiers assigned if needed	X			
5. Data quality objective achieved	X			

C. Specific Storm and Sample QA/QC Criteria	Lucky	Whitewater	Main	Americana	AS_6	Program Criteria	Met	Qualify	Reject
1. Antecedent dry period (inches in previous 72-hours)	0.03	0.00	—	0.01	0.01	< 0.11" in 72 hrs	X		
2. Precipitation (inches)	0.18	0.13	—	0.10/0.18	0.10/0.18	> 0.10"	X		
3. Sampled amount (% of total run-off)	63%	—	—	71%*	—	>= 75% or >= 6 hrs: no qualifier >= 50% and <75%: qualify < 50%: reject		X	
4. Composite sample duration (hours)	2.0	—	—	5.0	—				
4. Ecoli sample holding time (hours)	2.0	1.5	~~2.0~~ 1.0	2	—	<=8 hrs: no qualifier >8 and <=16 hrs.: qualify >16 hrs.: reject	X		
5. Filtering of samples for dissolved parameter analysis (hours)	—	—	—	1.5	—	<= 24 hrs: no qualifier > 24 hrs.: reject	X		

D. Notes

Lucky – No diss. parameters due to low volume and qualified due to lack of representativeness
WW – Composite discarded due to low sample volume (2 subsamples)
Main – Not setup for storm due to flow ~~sensor~~ sensor error. Flow readings when no flow present
Americana – Composites qualified for ~~reject~~ lack of representativeness and *Americana flow rejected. Runoff coefficients used to calculate total event runoff & Sampled runoff values.
AS-6 – no grabs or composites collected due to low flow.

Reviewed by Steven Turner **Date** 2/12/24

Approved by Monica Lowe **Date** 2/12/24

Storm Runoff Estimates and Trigger Volumes

Step 1. Enter runoff coefficients in yellow cells.
Step 2. Enter expected precipitation depth (in) in blue cell.
Step 3. Read trigger volumes (**bold**) in green cells.

Expected Precipitation Depth =	0.11
Aliquots per Sample =	17

Site	Area (ac)	Using RC calculated from flow data		
		RC	Expected Vol (ft^3)	Trigger Vol (ft^3)
Lucky	105	0.157	6582.5	**387**
Whitewater	498	0.069	13621.3	**801**
Main	79	0.246	7760.0	**456**
Main Alt	60	0.200	4791.6	**282**
Americana	875	0.144	50311.8	**2960**
AS_6	204	0.046	3747.0	**220**
State	34	0.160	2172.2	**128**

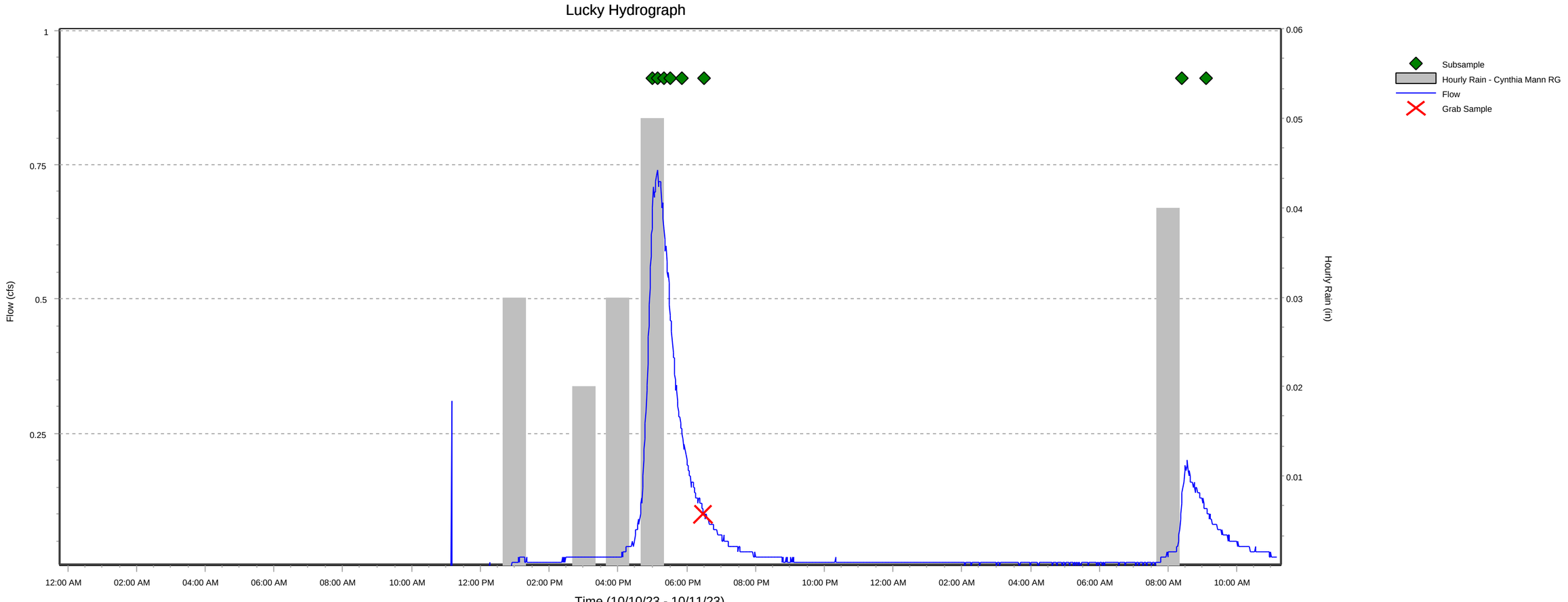
Notes:

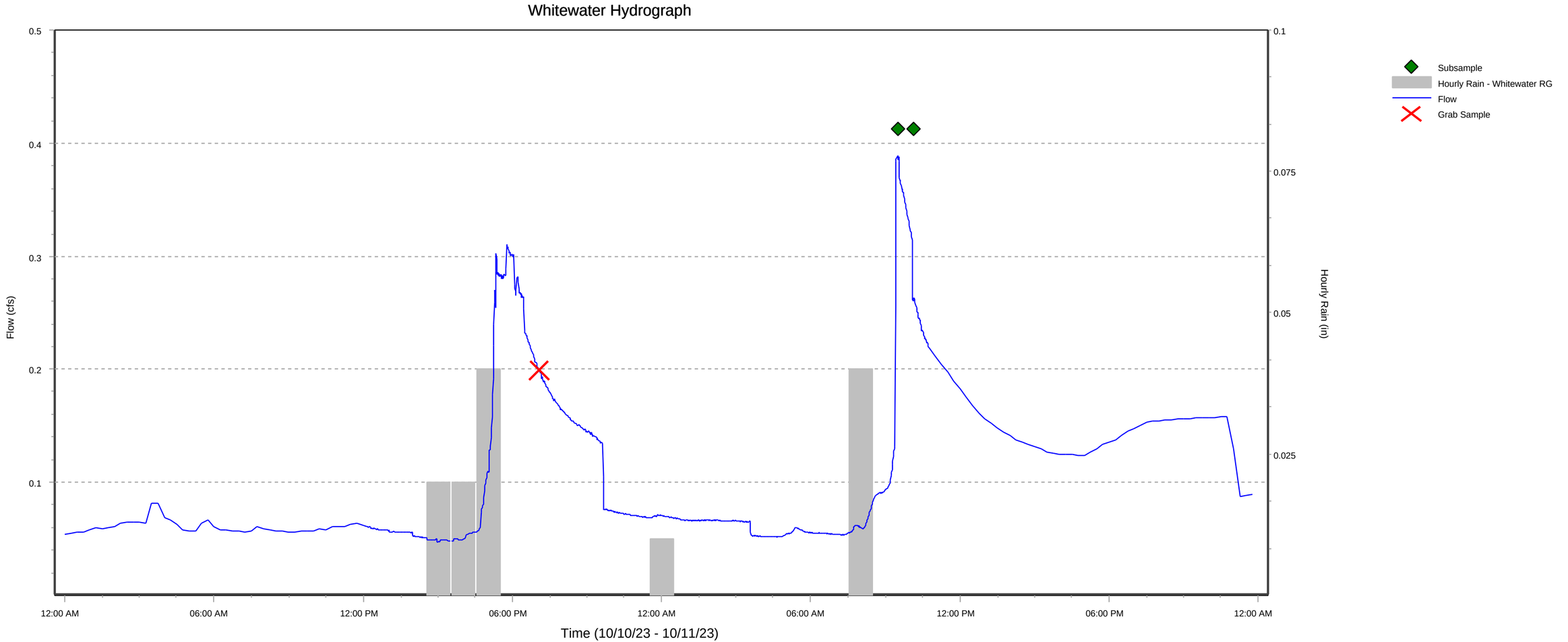
Calculated RC = Average (precip (ft) / [volume (ft^3) x area (ft^2)])

Where precip (ft) is the measured amount from local rain guage, and volume (ft^3) is the measured discharge, and area (ft^2) is the watershed area

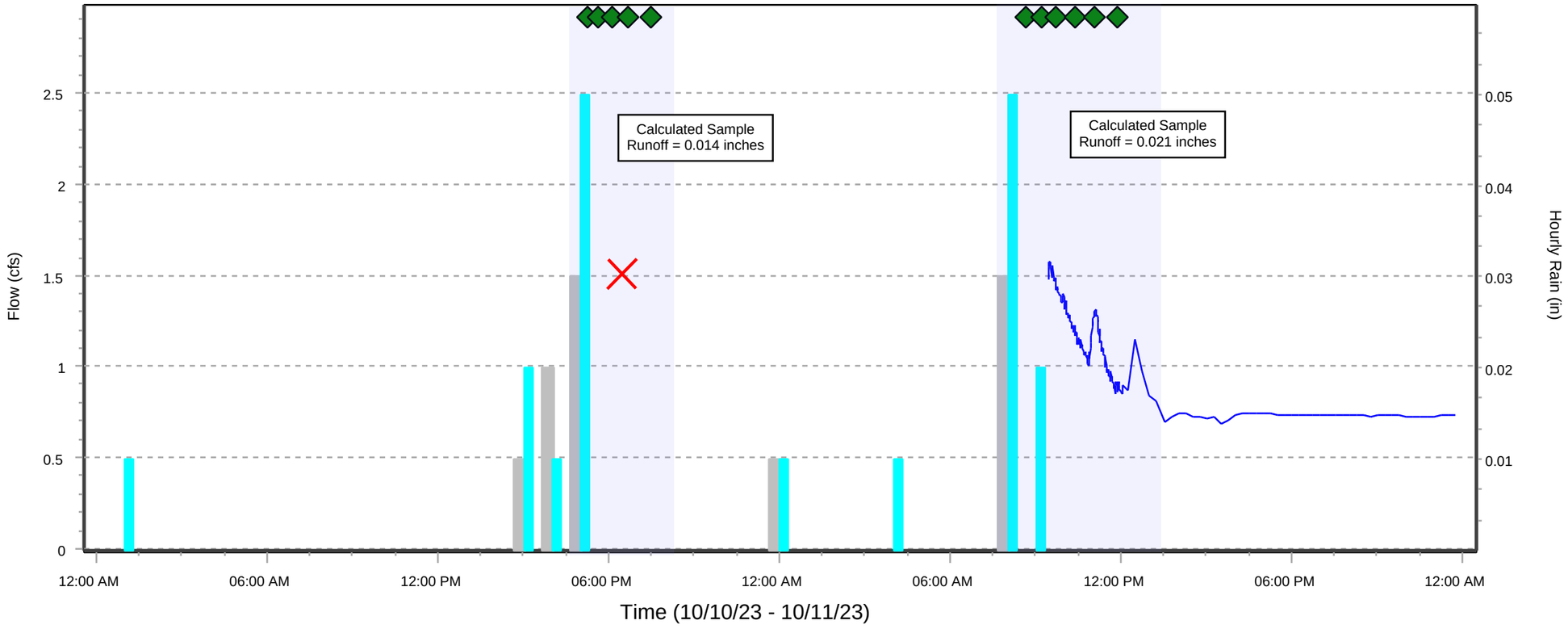
Expected volume (ft^3) = RC x expected precip (ft) x area (ft^2)

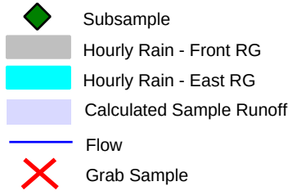
Attachment B: Storm Event Hydrographs


Lucky Hydrograph
Flow (cfs)
Hourly Rain (in)
Time (10/10/23 - 10/11/23)
1
0.75
0.5
0.25
0.06
0.05
0.04
0.03
0.02
0.01
12:00 AM
02:00 AM
04:00 AM
06:00 AM
08:00 AM
10:00 AM
12:00 PM
02:00 PM
04:00 PM
06:00 PM
08:00 PM
10:00 PM
12:00 AM
02:00 AM
04:00 AM
06:00 AM
08:00 AM
10:00 AM
Subsample
Hourly Rain - Cynthia Mann RG
Flow
Grab Sample


Whitewater Hydrograph
0.5
0.4
0.3
0.2
0.1
Flow (cfs)
0.1
0.075
0.05
0.025
Hourly Rain (in)
12:00 AM
06:00 AM
12:00 PM
06:00 PM
12:00 AM
06:00 AM
12:00 PM
06:00 PM
12:00 AM
Time (10/10/23 - 10/11/23)
Subsample
Hourly Rain - Whitewater RG
Flow
Grab Sample

Americana Hydrograph





Attachment C: Field Forms

Set Up/ Shut Down Form – HACH (Lucky, Main, AS_6)

STATION: Lucky

SET UP

Personnel: KC, ST

Date/Time On-Site: 10/10/23 1042

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
10:51	2.02	0.0	0.0	13.4 V

Enable Condition or Velocity Cutoff:	3.02
Deadband:	1.0"
Trigger Volume:	2895 gal

- [x] Install batteries on flowmeter and sampler
- [x] Perform decon. cycle
- [x] Install 15L sample bottle, with ice
- [x] Leave bottle lid at site, in a clean re-sealable plastic bag
- [x] Verify all cable and tubing connections
- [x] Check date and time on flowmeter and sampler
- [x] Set flowmeter program and sampler program parameters
- [x] Set logging interval to 1 minute
- [x] Start flowmeter program and sampler program
- [x] Verify running

Comments:

SHUT DOWN

Personnel: KC, ST

Date/Time On-Site: ~~10/10/23 0902~~ KC

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
1108	2.15	10.72	0.15		
~~0917~~	~~2.34~~	~~0.41~~	~~0.37~~		12.7
Downloaded to:		Rugged to KC			

If flow monitoring is complete:	**If continuing to monitor flow:**
[x] Halt program on flowmeter	☐ Replace flowmeter battery
[x] Download flowmeter data	☐ Reset logging interval to 15 minutes
[x] Remove flowmeter battery	☐ Change velocity cutoff to 0.02 fps
	☐ Start program
	☐ Verify running

Comments:

Composite Sample Collection

STATION: Lucky **Bottle** 1 **of** 1

Personnel: KC, ST **Date/Time On-Site:** 10/11/23 0830

☒ Halt sampler program	
☒ Put lid on sample bottle; label sample bottle	
Sample ID:	231010 ~~#0~~ KC #03 KC -WC
Approx Sample Volume (mL):	5000 ml
Clarity (ex. Clear, Cloudy, Silty):	Clear
Color (ex. Clear, Gray, Tan, Brown, Black):	brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	10/10/23 1700	Successful	13		
2	10/10/23 1710		14		
3	10/10/23 1720		15		
4	10/10/23 1732		16		
5	10/10/23 1751		17		
6	10/10/23 1831		18		
7	10/11/23 0823		19		
8	10/11/23 0906		20		
9			21		
10			22		
11			23		
12			24		

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☐ Keep flowmeter running
☐ Keep flowmeter running	☐ Install new 15L bottle, add ice
☐ Add ice to sample transport cooler	☐ Restart program from beginning
	Date/Time Restarted: _____
	☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Grab Sample Data Form

STATION: Lucky

Personnel: ZL, CS **Date/Time On-Site:** 10/10/23 1815 pm

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
1819	2.23	7.35	0.09	12.9	10/10/23 17:00	

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	231010-03 -WG	10/10/23	1829	☒
Field Duplicate *E.Coli*	231010-03 -101	10/10/23		☐
Field Blank *E.Coli*	231010-03 -001	10/10/23		☐

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP09	1830	16.47	7.38	5.66	81.35

Sampler Current Status	
First Subsample Date/Time	10/10/23 1700
Last Subsample Date/Time	10/10/23 1832
# of Subsamples taken	6

Comments:

Revised 210924 TL

Set Up/ Shut Down Form – ISCO (Whitewater, Americana, State)

TATION: Whitewater

SET UP

Personnel: KC, ST

Date/Time On-Site: 10/10/2023 1146

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1146	1.47	0.06	0.41	✓

Enable Condition:	2.6
Hysteresis:	1.0"
Flow Pulse Interval:	400 cf

On-Site

- [x] Replace flowmeter battery, install sampler battery
- [x] Perform decon. cycle
- [x] Install 15L sample bottle, with ice
- [x] Leave bottle lid at site, in a clean re-sealable plastic bag
- [x] Set sampler program parameters
- [x] Check date/time on sampler
- [x] Verify all cable and tubing connections
- [x] Verify sampler program is running

Flowlink (Refer to PG 411 or PG 412, if needed)

- [x] Direct or Remote; Date/time 10/10/23 1150
- [x] Retrieve data and review recent flow history
- [x] Change Wireless Power Control to Storm Event
- [x] Change Data Storage Rates to 1 minute for Level, Velocity, Total Flow, and Flow Rate
- [x] Enable Sampler: On Trigger, and set Sampler Enable equation
- [x] Set Sampler Pacing to Flow Paced, and set trigger volume

Comments:

SHUT DOWN

Personnel: KC, ST

Date/Time On-Site: 10/10/23 0902

1040

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
0917	2.34	0.11	0.37	—
	Downloaded to:	Rugged 6 / USB		
1040	2.06	0.22	0.90	✓

On-Site

- [ ] Replace flowmeter battery ~~batt~~ KC Always connected to power. Not on battery.
- [x] Remove battery from sampler

Flowlink (Refer to Flowlink Instructions, if needed)

- [x] Direct or Remote; Date/time 0905
- [x] Retrieve data
- [x] Change Wireless Power Control to Dry Weather
- [x] Change Data Storage Rates to 15 minutes for Level, Velocity, Total Flow, and Flow Rate
- [x] Enable Sampler: Never

Comments:

Composite Sample Collection

STATION: Whitewater
Personnel: KC, ST

Bottle 1 **of** ____
Date/Time On-Site: 10/11/23 1040

☐ Halt sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	-WC
Approx Sample Volume (mL):	
Clarity (ex. Clear, Cloudy, Silty):	
Color (ex. Clear, Gray, Tan, Brown, Black):	
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	10/11/23 0920	Successful	13		
2	↓ 0958		14		
3			15		
4			16		
5			17		
6			18		
7			19		
8			20		
9			21		
10			22		
11			23		
12			24		

Comments:

Sample discarded wf

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter ☐ Keep flowmeter running ☐ Add ice to sample transport cooler	☐ Keep flowmeter running ☐ Install new 15L bottle; add ice ☐ Restart program from beginning **Date/Time Restarted:** _____ ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Grab Sample Data Form

STATION: Whitewater

Personnel: ZL, CS **Date/Time On-Site:** 10/10/23 1851

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
1851	2.09	~~0.90~~ 0.90	0.81	-	10/10/10 1600	0.08in

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	231010-11 -WG	10/10/23	1904	☒
Field Duplicate *E.Coli*	-101			☐
Field Blank *E.Coli*	-001			☐

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP09	1904	17.17	~~7.55~~ 7.55	6.28	~~95.09~~ 95.09

Sampler Current Status	
First Subsample Date/Time	
Last Subsample Date/Time	
# of Subsamples taken	

Comments:
@1900 No composite samples taken yet. only grabs.

Revised 210924 TL

Set Up/ Shut Down Form – HACH (Lucky, Main, AS_6)

TATION: Main

SET UP

Personnel: KC, ST

Date/Time On-Site: 10/10/23 1228

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1230				13.5

Enable Condition or Velocity Cutoff:	
Deadband:	
Trigger Volume:	

- ☒ Install batteries on flowmeter and sampler
- ☐ Perform decon. cycle
- ☐ Install 15L sample bottle, with ice
- ☐ Leave bottle lid at site, in a clean re-sealable plastic bag
- ☐ Verify all cable and tubing connections
- ☐ Check date and time on flowmeter and sampler
- ☐ Set flowmeter program and sampler program parameters
- ☐ Set logging interval to 1 minute
- ☐ Start flowmeter program and sampler program
- ☐ Verify running

flow meter giving readings even though no flow in pipe. Tried swapping flow meter out for a new one. Same readings given. Not targetting Main for this event. Sensor appears to be reading incorrectly -

Comments:

SHUT DOWN

Personnel: _____

Date/Time On-Site: _____

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
Downloaded to:					

If flow monitoring is complete:	**If continuing to monitor flow:**
☐ Halt program on flowmeter	☐ Replace flowmeter battery
☐ Download flowmeter data	☐ Reset logging interval to 15 minutes
☐ Remove flowmeter battery	☐ Change velocity cutoff to 0.02 fps
	☐ Start program
	☐ Verify running

Comments:

Composite Sample Collection

STATION: _____ **Bottle** _____ **of** _____

Personnel: _____ **Date/Time On-Site:** _____

☐ Halt sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	-WC
Approx Sample Volume (mL):	
Clarity (ex. Clear, Cloudy, Silty):	
Color (ex. Clear, Gray, Tan, Brown, Black):	
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1			13		
2			14		
3			15		
4			16		
5			17		
6			18		
7			19		
8			20		
9			21		
10			22		
11			23		
12			24		

Comments:

If sampling is complete:
- ☐ Power off sampler, if separate from flowmeter
- ☐ Keep flowmeter running
- ☐ Add ice to sample transport cooler

If continuing sampling (sample bottle change-out):
- ☐ Keep flowmeter running
- ☐ Install new 15L bottle, add ice
- ☐ Restart program from beginning

Date/Time Restarted: _____
- ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Set Up/ Shut Down Form – ISCO (Whitewater, Americana, State)

TATION: Americana

SET UP

Personnel: KC, ST

Date/Time On-Site: 10/10/23 1247

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
0916	3.81	0.72	1.544	11.59
Enable Condition:	5.1"			
Hysteresis:	1.0"			
Flow Pulse Interval:	2960 cf			

On-Site

- ☒ Replace flowmeter battery, install sampler battery
- ☒ Perform decon. cycle
- ☒ Install 15L sample bottle, with ice
- ☒ Leave bottle lid at site, in a clean re-sealable plastic bag
- ☒ Set sampler program parameters
- ☒ Check date/time on sampler
- ☒ Verify all cable and tubing connections
- ☒ Verify sampler program is running

Flowlink (Refer to PG 411 or PG 412, if needed)

- ☒ Direct or Remote; Date/time 10/10/23 0920
- ☒ Retrieve data and review recent flow history
- ☒ Change Wireless Power Control to Storm Event
- ☒ Change Data Storage Rates to 1 minute for Level, Velocity, Total Flow, and Flow Rate
- ☒ Enable Sampler: On Trigger, and set Sampler Enable equation
- ☒ Set Sampler Pacing to Flow Paced, and set trigger volume

Comments: "Replace pump tubing" warning when program started. Followed manual directions to select pump, alarm & reset pump count. Error message went away. tube

SHUT DOWN

Personnel: KC, ST

Date/Time On-Site: 10/11/23 1151

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1151	4.34	0.9	1.593	12.13
	Downloaded to:	USB		

On-Site

- ☐ Replace flowmeter battery
- ☐ Remove battery from sampler

Flowlink (Refer to Flowlink Instructions, if needed)

- ☐ Direct or Remote; Date/time 10/11/23 1203
- ☒ Retrieve data
- ☒ Change Wireless Power Control to Dry Weather
- ☒ Change Data Storage Rates to 15 minutes for Level, Velocity, Total Flow, and Flow Rate
- ☒ Enable Sampler: Never

Comments:

Composite Sample Collection

STATION: Amnicana **Bottle** 1 **of** 1

Personnel: KC, ST **Date/Time On-Site:** 10/10/23 1815

☐ Halt sampler program		
☐ Put lid on sample bottle; label sample bottle		
Sample ID:	231011-14	-WC
Approx Sample Volume (mL):	5750 ml	
Clarity (ex. Clear, Cloudy, Silty):	Silty	
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown	
QA/QC Sample ID:	-103	(Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	10/10/23 1713	Success	13		
2	1736		14		
3	1804		15		
4	1839		16		
5	1926		17		
6	10/11 839		18		
7	908		19		
8	942		20		
9	1020		21		
10	1103		22		
11	1150	↓	23		
12			24		

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☒ Power off sampler, if separate from flowmeter	☐ Keep flowmeter running
☒ Keep flowmeter running	☐ Install new 15L bottle; add ice
☒ Add ice to sample transport cooler	☐ Restart program from beginning
	Date/Time Restarted: _____
	☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Grab Sample Data Form

STATION: Americana

Personnel: KC ST **Date/Time On-Site:** 101023 18:15

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
1817	5.5	1.41	1.768	12.04		

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	231010-14 -WG	10/10/23	1823	☒
Field Duplicate *E.Coli*	-101			☐
Field Blank *E.Coli*	-001			☐

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP11	1826	16.78	8.40	6.53	247.08

Sampler Current Status	
First Subsample Date/Time	10/10/23 1713
Last Subsample Date/Time	10/10/23 1804
# of Subsamples taken	3

Comments:

Revised 210924 TL

Set Up/ Shut Down Form – HACH (Lucky, Main, AS_6)

STATION: AS-6

SET UP

Personnel: KC, ST

Date/Time On-Site: 10/10/23 1352

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1352	0.0	0.0	0.0	12.5

Enable Condition or Velocity Cutoff:	0.02
Deadband:	
Trigger Volume:	221 cf

- [x] Install batteries on flowmeter and sampler
- [x] Perform decon. cycle
- [x] Install 15L sample bottle, with ice
- [x] Leave bottle lid at site, in a clean re-sealable plastic bag
- [x] Verify all cable and tubing connections
- [x] Check date and time on flowmeter and sampler
- [x] Set flowmeter program and sampler program parameters
- [x] Set logging interval to 1 minute
- [x] Start flowmeter program and sampler program
- [x] Verify running

Comments: Using ~~480~~ 490 mL for sample volume

SHUT DOWN

Personnel: KC, ST

Date/Time On-Site: 10/10/23 956

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
1008	0.922	0.01	0.37	198	12.3
Downloaded to:		Rugged 6			

If flow monitoring is complete:	**If continuing to monitor flow:**
☒ Halt program on flowmeter	☐ Replace flowmeter battery
☐ Download flowmeter data	☐ Reset logging interval to 15 minutes
☐ Remove flowmeter battery	☐ Change velocity cutoff to 0.02 fps
	☐ Start program
	☐ Verify running

Comments: No composite or grab samples submitted due to low flow levels.

Composite Sample Collection

STATION: _____ **Bottle** _____ **of** _____

Personnel: _____ **Date/Time On-Site:** _____

☐ Halt sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	-WC
Approx Sample Volume (mL):	
Clarity (ex. Clear, Cloudy, Silty):	
Color (ex. Clear, Gray, Tan, Brown, Black):	
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information					
Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1			13		
2			14		
3			15		
4			16		
5			17		
6			18		
7			19		
8			20		
9			21		
10			22		
11			23		
12			24		

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter ☐ Keep flowmeter running ☐ Add ice to sample transport cooler	☐ Keep flowmeter running ☐ Install new 15L bottle, add ice ☐ Restart program from beginning **Date/Time Restarted:** _____ ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Attachment D: Storm Event Analytical Reports

Report Date: 10/25/2023 11:20

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00321-01	ACST1B	231010-03-WG	Water		10/10/2023	10/10/2023
AC00321-02	ACST1B	231010-11-WG	Water		10/10/2023	10/10/2023
AC00321-03	ACST1B	231010-14-WG	Water		10/10/2023	10/10/2023

Report Date: 10/25/2023 11:20

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	231010-03-WG
Date/Time Collected:	10/10/2023 18:29		
Lab Number:	AC00321-01	Sample Collector:	C.S
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B234049	2720.0	MPN/100 mL	100.0	1.0	IDEXX - Colilert	10/10/23 20:25	10/11/23 20:25	LRF	D
Wet Chemistry										
Chlorine Screen	B234050	Absent				SM 4500-CL G-2000 mod	10/10/23	10/10/23 20:11	JAL	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 10/25/2023 11:20

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	231010-11-WG
Date/Time Collected:	10/10/2023 19:04		
Lab Number:	AC00321-02	Sample Collector:	C.S
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B234049	1990.0	MPN/100 mL	100.0	1.0	IDEXX - Colilert	10/10/23 20:25	10/11/23 20:25	LRF	D
Wet Chemistry										
Chlorine Screen	B234050	Absent				SM 4500-CL G-2000 mod	10/10/23	10/10/23 20:11	JAL	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 10/25/2023 11:20

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	231010-14-WG
Date/Time Collected:	10/10/2023 18:23		
Lab Number:	AC00321-03	Sample Collector:	K.C
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B234049	129.6	MPN/100 mL	1.0	1.0	IDEXX - Colilert	10/10/23 20:25	10/11/23 20:25	LRF	
Wet Chemistry										
Chlorine Screen	B234050	Absent				SM 4500-CL G-2000 mod	10/10/23	10/10/23 20:11	JAL	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 10/25/2023 11:20

Boise City Public Works
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Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Microbiology									
Batch: B234049									
Blank (B234049-BLK1)									
E. Coli	Absent						10/11/2023	LRF	
LCS (B234049-BS1)									
E. Coli				Present			10/11/2023	LRF	
Duplicate (B234049-DUP2)	Source ID: AC00321-01RE1								
E. Coli					Pass	128	10/11/2023	LRF	

Report Date: 10/25/2023 11:20

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
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Fax (208) 608-7319

Notes and Definitions

Item	Definition
D	Data reported from a dilution

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

for JFK

Janet Finegan-Kelly
Water Quality Laboratory Manager

Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Ada County Highway District

Attn: Steven Turner
3775 Adams Street
Garden City, Idaho 83714–6418
Tel. (208) 387–6269
Fax (208) 387–6391

Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Kristen Chisholm, Steven Turner, Chad Schwend & Zuly Lapa

Lab# AC00321	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	E. Coli - IDEXX Colilert	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
-01	10/10/23		1829		231010-03-WG	CS	X	X												X					1
-02	↓		1904		231010-11-WG	CS	X	X												X					1
-03	↓		1823		231010-14-WG	KC	X	X												X					1

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
Kristen Chisholm	10/10/23 2003	10.10.23	2003

Report Date: 12/04/2023 12:04

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00322-01	ACST1C	231010-03-WC	Water		10/11/2023	10/11/2023
Comments:						
	Low volume. No dissolved parameters were collected.					
AC00322-02	ACST1C	231010-14-WC	Water		10/11/2023	10/11/2023

Report Date: 12/04/2023 12:04

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1C	Location Description:	231010-03-WC
Date/Time Collected:	10/10/2023 17:00 - 10/11/2023 09:06		
Lab Number:	AC00322-01	Sample Collector:	K.C
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B234335	0.336	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	10/28/23	10/28/23 12:02	MEC	
BOD5	B234067	17.5	mg/L	2.00	2.00	SM 5210 B-2016	10/12/23	10/17/23 9:13	RKT	
COD	B234066	83.0	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	10/12/23	10/12/23 9:31	JAL	
TKN	B234085	1.97	mg/L	0.200	0.200	EPA 351.2, 10-107-06-2-M (Equivalent)	10/13/23	10/13/23 18:35	EDM	
Total Dissolved Solids	B234048	126	mg/L	20.0	20.0	SM 2540 C-2015	10/12/23	10/13/23 11:02	RKT	
Total Suspended Solids	B234076	17.4	mg/L	0.900	0.900	SM 2540 D-2015	10/12/23	10/12/23 9:41	RKT	
Turbidity	B234051	19.6	NTU	0.3	0.3	EPA 180.1, Rev. 2.0 (1993)	10/11/23	10/11/23 13:52	KMR	
Total Metals										
Mercury	B234059	0.0118	ug/L	0.0100	0.0100	EPA 245.1	10/12/23	10/13/23 8:03	SAS	
Arsenic	B234105	2.6	ug/L	0.070	0.070	EPA 200.8	10/18/23	10/19/23 15:37	DMW	
Cadmium	B234105	0.035	ug/L	0.010	0.010	EPA 200.8	10/18/23	10/19/23 15:37	DMW	
Calcium	B234177	15.8	mg/L	0.0400	0.0400	EPA 200.7	10/19/23	10/20/23 10:04	AMO	
Lead	B234105	0.65	ug/L	0.010	0.010	EPA 200.8	10/18/23	10/19/23 15:37	DMW	
Magnesium	B234177	1850	ug/L	80.0	80.0	EPA 200.7	10/19/23	10/20/23 10:04	AMO	
Phosphorus as P	B234177	0.485	mg/L	0.0120	0.0120	EPA 200.7	10/19/23	10/20/23 10:04	AMO	
Hardness	B234177	47.2	mg/L	0.100	0.100	SM 2340 B-2011	10/19/23	10/20/23 10:04	AMO	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 12/04/2023 12:04

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1C	Location Description:	231010-14-WC
Date/Time Collected:	10/10/2023 17:13 - 10/11/2023 11:50		
Lab Number:	AC00322-02	Sample Collector:	K.C
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B234335	0.353	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	10/28/23	10/28/23 11:59	MEC	
BOD5	B234067	19.7	mg/L	2.00	2.00	SM 5210 B-2016	10/12/23	10/17/23 9:06	RKT	
COD	B234066	77.0	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	10/12/23	10/12/23 9:31	JAL	
Nitrate-Nitrite, as N	B234143	0.930	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	10/17/23	10/17/23 15:14	BAK	
TKN	B234085	1.44	mg/L	0.200	0.200	EPA 351.2, 10-107-06-2-M (Equivalent)	10/13/23	10/13/23 18:36	EDM	
Total Dissolved Solids	B234048	236	mg/L	20.0	20.0	SM 2540 C-2015	10/12/23	10/13/23 11:03	RKT	
Total Suspended Solids	B234076	23.6	mg/L	0.900	0.900	SM 2540 D-2015	10/12/23	10/12/23 9:42	RKT	
Turbidity	B234051	33.6	NTU	0.3	0.3	EPA 180.1, Rev. 2.0 (1993)	10/11/23	10/11/23 14:00	KMR	
Dissolved Wet Chemistry										
Orthophosphate, as P	B234046	0.169	mg/L	3.00E-3	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	10/11/23	10/11/23 14:01	JAL	
Total Metals										
Mercury	B234059	<0.0100	ug/L	0.0100	0.0100	EPA 245.1	10/12/23	10/13/23 7:14	SAS	U
Arsenic	B234105	5.5	ug/L	0.070	0.070	EPA 200.8	10/18/23	10/19/23 15:46	DMW	
Cadmium	B234105	0.072	ug/L	0.010	0.010	EPA 200.8	10/18/23	10/19/23 15:46	DMW	
Calcium	B234177	<0.0400	mg/L	0.0400	0.0400	EPA 200.7	10/19/23	10/20/23 10:09	AMO	U
Lead	B234105	2.4	ug/L	0.010	0.010	EPA 200.8	10/18/23	10/19/23 15:46	DMW	
Magnesium	B234177	<80.0	ug/L	80.0	80.0	EPA 200.7	10/19/23	10/20/23 10:09	AMO	U
Phosphorus as P	B234799	0.308	mg/L	0.0120	0.0120	EPA 200.7	11/30/23	12/1/23 10:09	AMO	
Hardness	B234177	<0.100	mg/L	0.100	0.100	SM 2340 B-2011	10/19/23	10/20/23 10:09	AMO	U
Dissolved Metals										
Cadmium	B233966	0.021	ug/L	0.010	0.010	EPA 200.8	10/13/23	10/13/23 17:50	DMW	
Copper	B233966	8.2	ug/L	0.15	0.15	EPA 200.8	10/13/23	10/13/23 17:50	DMW	
Lead	B233966	0.095	ug/L	9.00E-3	9.00E-3	EPA 200.8	10/13/23	10/13/23 17:50	DMW	
Zinc	B233966	22.0	ug/L	0.50	0.50	EPA 200.8	10/13/23	10/13/23 17:50	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 12/04/2023 12:04

Boise City Public Works
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Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry									
Batch: B234048									
Blank (B234048-BLK1)									
Total Dissolved Solids	<20	mg/L					10/13/2023	RKT	U
LCS (B234048-BS1)									
Total Dissolved Solids			95.4	90-110			10/13/2023	RKT	
Duplicate (B234048-DUP1)	Source ID: RW00036-02								
Total Dissolved Solids					0.322	10	10/13/2023	RKT	
Batch: B234051									
Blank (B234051-BLK1)									
Turbidity	<0.3	NTU					10/11/2023	KMR	U
LCS (B234051-BS1)									
Turbidity			102	90-110			10/11/2023	KMR	
Duplicate (B234051-DUP1)	Source ID: AC00322-01								
Turbidity					0.340	25	10/11/2023	KMR	
Batch: B234066									
Blank (B234066-BLK1)									
COD	<7	mg/L					10/12/2023	JAL	U
LCS (B234066-BS1)									
COD			99.3	90-110			10/12/2023	JAL	
Duplicate (B234066-DUP1)	Source ID: RW00036-05								
COD					2.44	10	10/12/2023	JAL	
Duplicate (B234066-DUP2)	Source ID: AC00322-01								
COD					1.20	10	10/12/2023	JAL	
Batch: B234067									
Blank (B234067-BLK1)									
BOD5	<2	mg/L					10/17/2023	RKT	U
LCS (B234067-BS1)									
BOD5			102	84.6-115.4			10/17/2023	RKT	
LCS (B234067-BS2)									
BOD5			107	84.6-115.4			10/17/2023	RKT	
Duplicate (B234067-DUP1)	Source ID: BB03290-02								
BOD5					1.56	30	10/17/2023	RKT	D

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B234076									
Blank (B234076-BLK1)									
Total Suspended Solids	<0.9	mg/L					10/12/2023	RKT	U
LCS (B234076-BS1)									
Total Suspended Solids			97.2	90-110			10/12/2023	RKT	
Duplicate (B234076-DUP1) Source ID: BB03292-01									
Total Suspended Solids					1.65	20	10/12/2023	RKT	
Duplicate (B234076-DUP2) Source ID: ST00053-02									
Total Suspended Solids					1.26	20	10/12/2023	RKT	
Batch: B234085									
Blank (B234085-BLK1)									
TKN	<0.2	mg/L					10/13/2023	EDM	U
LCS (B234085-BS1)									
TKN			97.9	80-120			10/13/2023	EDM	
Duplicate (B234085-DUP1) Source ID: WB02755-06									
TKN					1.60	20	10/13/2023	EDM	D
Matrix Spike (B234085-MS1) Source ID: WB02755-06									
TKN			89.1	80-120			10/13/2023	EDM	D
Matrix Spike Dup (B234085-MSD1) Source ID: WB02755-06									
TKN			89.8	80-120	0.285	20	10/13/2023	EDM	D
Batch: B234143									
Blank (B234143-BLK1)									
Nitrate-Nitrite, as N	<0.025	mg/L					10/17/2023	BAK	U
Blank (B234143-BLK2)									
Nitrate-Nitrite, as N	<0.025	mg/L					10/17/2023	BAK	U
LCS (B234143-BS1)									
Nitrate-Nitrite, as N			97.8	90-110			10/17/2023	BAK	
LCS (B234143-BS2)									
Nitrate-Nitrite, as N			96.0	90-110			10/17/2023	BAK	
Duplicate (B234143-DUP1) Source ID: BB03281-02									
Nitrate-Nitrite, as N					0.457	10	10/17/2023	BAK	
Duplicate (B234143-DUP2) Source ID: RW00037-01									
Nitrate-Nitrite, as N					0.344	10	10/17/2023	BAK	
Duplicate (B234143-DUP3) Source ID: WB02749-07									
Nitrate-Nitrite, as N					0.195	10	10/17/2023	BAK	D
Matrix Spike (B234143-MS1) Source ID: BB03281-02									
Nitrate-Nitrite, as N			97.7	90-110			10/17/2023	BAK	
Matrix Spike (B234143-MS2) Source ID: RW00037-01									
Nitrate-Nitrite, as N			91.7	90-110			10/17/2023	BAK	
Matrix Spike (B234143-MS3) Source ID: WB02749-07									
Nitrate-Nitrite, as N			92.9	90-110			10/17/2023	BAK	D

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B234143 (Continued)									
Matrix Spike Dup (B234143-MSD1) Source ID: BB03281-02									
Nitrate-Nitrite, as N			95.1	90-110	1.49	10	10/17/2023	BAK	
Matrix Spike Dup (B234143-MSD2) Source ID: RW00037-01									
Nitrate-Nitrite, as N			91.9	90-110	0.117	10	10/17/2023	BAK	
Matrix Spike Dup (B234143-MSD3) Source ID: WB02749-07									
Nitrate-Nitrite, as N			91.6	90-110	0.567	10	10/17/2023	BAK	D
Batch: B234335									
Blank (B234335-BLK1)									
Ammonia, as N	<0.035	mg/L					10/28/2023	MEC	U
LCS (B234335-BS1)									
Ammonia, as N			104	90-110			10/28/2023	MEC	
Duplicate (B234335-DUP1) Source ID: BB03292-01									
Ammonia, as N					0.0151	10	10/28/2023	MEC	
Duplicate (B234335-DUP2) Source ID: WB02765-06									
Ammonia, as N					1.26	10	10/28/2023	MEC	
Matrix Spike (B234335-MS1) Source ID: BB03292-01									
Ammonia, as N			103	80-120			10/28/2023	MEC	
Matrix Spike (B234335-MS2) Source ID: WB02765-06									
Ammonia, as N			108	80-120			10/28/2023	MEC	
Matrix Spike Dup (B234335-MSD1) Source ID: BB03292-01									
Ammonia, as N			102	80-120	0.611	10	10/28/2023	MEC	
Matrix Spike Dup (B234335-MSD2) Source ID: WB02765-06									
Ammonia, as N			109	80-120	0.658	10	10/28/2023	MEC	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Dissolved Wet Chemistry									
Batch: B234046									
Blank (B234046-BLK1)									
Orthophosphate, as P	<0.003	mg/L					10/11/2023	JAL	U
LCS (B234046-BS1)									
Orthophosphate, as P			98.8	90-110			10/11/2023	JAL	
Duplicate (B234046-DUP1) Source ID: LS01715-02									
Orthophosphate, as P					2.17	10	10/11/2023	JAL	D
Duplicate (B234046-DUP2) Source ID: WB02755-08									
Orthophosphate, as P					0.279	10	10/11/2023	JAL	D
Matrix Spike (B234046-MS1) Source ID: LS01715-02									
Orthophosphate, as P			98.4	90-110			10/11/2023	JAL	D
Matrix Spike (B234046-MS2) Source ID: WB02755-08									
Orthophosphate, as P			100	90-110			10/11/2023	JAL	D
Matrix Spike Dup (B234046-MSD1) Source ID: LS01715-02									
Orthophosphate, as P			97.1	90-110	0.659	10	10/11/2023	JAL	D
Matrix Spike Dup (B234046-MSD2) Source ID: WB02755-08									
Orthophosphate, as P			100	90-110	0.0201	10	10/11/2023	JAL	D

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Total Metals									
Batch: B234059									
Blank (B234059-BLK1)									
Mercury	<0.01	ug/L					10/13/2023	SAS	U
LCS (B234059-BS1)									
Mercury			99.0	85-115			10/13/2023	SAS	
Duplicate (B234059-DUP1) Source ID: AC00322-02									
Mercury					NR	20	10/13/2023	SAS	U
Duplicate (B234059-DUP2) Source ID: RW00036-06									
Mercury					NR	20	10/13/2023	SAS	U
Matrix Spike (B234059-MS1) Source ID: AC00322-02									
Mercury			108	70-130			10/13/2023	SAS	
Matrix Spike (B234059-MS2) Source ID: RW00036-06									
Mercury			111	70-130			10/13/2023	SAS	
Matrix Spike Dup (B234059-MSD1) Source ID: AC00322-02									
Mercury			107	70-130	0.688	20	10/13/2023	SAS	
Matrix Spike Dup (B234059-MSD2) Source ID: RW00036-06									
Mercury			110	70-130	0.399	20	10/13/2023	SAS	
Batch: B234105									
Blank (B234105-BLK1)									
Arsenic	<0.070	ug/L					10/19/2023	DMW	U
Cadmium	<0.010	ug/L					10/19/2023	DMW	U
Lead	<0.010	ug/L					10/19/2023	DMW	U
LCS (B234105-BS1)									
Arsenic			96.6	85-115			10/19/2023	DMW	
Cadmium			98.7	85-115			10/19/2023	DMW	
Lead			101	85-115			10/19/2023	DMW	
Duplicate (B234105-DUP1) Source ID: AC00322-01									
Arsenic					0.428	20	10/19/2023	DMW	
Cadmium					5.71	20	10/19/2023	DMW	
Lead					1.07	20	10/19/2023	DMW	
Matrix Spike (B234105-MS1) Source ID: AC00322-01									
Arsenic			96.8	70-130			10/19/2023	DMW	
Cadmium			99.6	70-130			10/19/2023	DMW	
Lead			99.3	70-130			10/19/2023	DMW	
Matrix Spike Dup (B234105-MSD1) Source ID: AC00322-01									
Arsenic			94.6	70-130	1.86	20	10/19/2023	DMW	
Cadmium			98.6	70-130	0.985	20	10/19/2023	DMW	
Lead			98.6	70-130	0.635	20	10/19/2023	DMW	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Total Metals (Continued)									
Batch: B234177									
Blank (B234177-BLK1)									
Calcium	<0.04	mg/L					10/20/2023	AMO	U
Magnesium	<80	ug/L					10/20/2023	AMO	U
Phosphorus as P	<0.012	mg/L					10/20/2023	AMO	U
LCS (B234177-BS1)									
Calcium			98.9	85-115			10/20/2023	AMO	
Magnesium			102	85-115			10/20/2023	AMO	
Phosphorus as P			105	85-115			10/20/2023	AMO	
Duplicate (B234177-DUP1) Source ID: LS01721-06									
Calcium					0.292	20	10/20/2023	AMO	
Magnesium					2.76	20	10/20/2023	AMO	
Phosphorus as P					5.61	20	10/20/2023	AMO	
Matrix Spike (B234177-MS1) Source ID: LS01721-06									
Calcium			77.5	70-130			10/20/2023	AMO	
Magnesium			91.3	70-130			10/20/2023	AMO	
Phosphorus as P			97.6	70-130			10/20/2023	AMO	
Matrix Spike Dup (B234177-MSD1) Source ID: LS01721-06									
Calcium			98.3	70-130	9.81	20	10/20/2023	AMO	
Magnesium			103	70-130	10.2	20	10/20/2023	AMO	
Phosphorus as P			112	70-130	11.9	20	10/20/2023	AMO	
Batch: B234661									
Blank (B234661-BLK1)									
Phosphorus as P	<0.012	mg/L					11/22/2023	AMO	U
LCS (B234661-BS1)									
Phosphorus as P			100	85-115			11/22/2023	AMO	
Duplicate (B234661-DUP1) Source ID: BB03382-01									
Phosphorus as P					2.18	20	11/22/2023	AMO	
Matrix Spike (B234661-MS1) Source ID: BB03382-01									
Phosphorus as P			94.0	70-130			11/22/2023	AMO	
Matrix Spike Dup (B234661-MSD1) Source ID: BB03382-01									
Phosphorus as P			93.7	70-130	0.164	20	11/22/2023	AMO	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Total Metals (Continued)									
Batch: B234799									
Blank (B234799-BLK1)									
Phosphorus as P	<0.012	mg/L					12/01/2023	AMO	U
LCS (B234799-BS1)									
Phosphorus as P			104	85-115			12/01/2023	AMO	
Duplicate (B234799-DUP1) Source ID: EP00294-01									
Phosphorus as P					0.399	20	12/01/2023	AMO	
Matrix Spike (B234799-MS1) Source ID: EP00294-01									
Phosphorus as P			101	70-130			12/01/2023	AMO	
Matrix Spike Dup (B234799-MSD1) Source ID: EP00294-01									
Phosphorus as P			101	70-130	0.280	20	12/01/2023	AMO	
Dissolved Metals									
Batch: B233966									
Blank (B233966-BLK1)									
Cadmium	<0.010	ug/L					10/13/2023	DMW	U
Copper	<0.15	ug/L					10/13/2023	DMW	U
Lead	<0.0090	ug/L					10/13/2023	DMW	U
Zinc	<0.50	ug/L					10/13/2023	DMW	U
LCS (B233966-BS1)									
Cadmium			91.2	85-115			10/13/2023	DMW	
Copper			92.8	85-115			10/13/2023	DMW	
Lead			93.2	85-115			10/13/2023	DMW	
Zinc			95.4	85-115			10/13/2023	DMW	
Duplicate (B233966-DUP1) Source ID: NP00059-05									
Cadmium					NR	10	10/13/2023	DMW	U
Copper					0.902	10	10/13/2023	DMW	
Lead					9.73	10	10/13/2023	DMW	
Zinc					1.54	10	10/13/2023	DMW	
Matrix Spike (B233966-MS1) Source ID: NP00059-05									
Cadmium			94.2	70-130			10/13/2023	DMW	
Copper			87.9	70-130			10/13/2023	DMW	
Lead			90.5	70-130			10/13/2023	DMW	
Zinc			91.6	70-130			10/13/2023	DMW	
Matrix Spike Dup (B233966-MSD1) Source ID: NP00059-05									
Cadmium			93.3	70-130	0.903	10	10/13/2023	DMW	
Copper			88.5	70-130	0.546	10	10/13/2023	DMW	
Lead			90.2	70-130	0.360	10	10/13/2023	DMW	
Zinc			92.5	70-130	0.902	10	10/13/2023	DMW	

Report Date: 12/04/2023 12:04

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Notes and Definitions

Item	Definition
D	Data reported from a dilution
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

for JFK

Janet Finegan-Kelly
Water Quality Laboratory Manager

Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Ada County Highway District

Attn: Steven Turner
3775 Adams Street
Garden City, Idaho 83714–6418
Tel. (208) 387–6269
Fax (208) 387–6391

Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Kristen Clusholm
Steven Turner

Lab# AC00322	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	E. Coli - IDEXX Colilert	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
-01	10/10/23	10/11/23	1700	0906	231010-03-WC	KC	X		X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	1
-02	10/10/23	10/11/23	1713	1150	231010-~~13~~ 14 -WC	KC	X		X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	1

Relinquished by (sign)	Date & Time Transferred	Received by (sign)
Kristen Clusholm	10/11/23 1242	Sandra Wen

Comments/Special Instructions:

Low volume Samples. Please try to split for optimum number of analysis listed above.
AC00322-01: no dissolved parameters collected.
Sample AC00322-02 correct name is 231010-14-WC.
See attached email. -Alb

AC00322

April Griffith

From: Kristen Chisholm <Kchisholm@achdidaho.org>
Sent: Wednesday, October 11, 2023 1:33 PM
To: April Griffith
Cc: Steven Turner; Monica Lowe
Subject: [External] Re: Site ID

Hi April,

Sorry, the correct ID is 14.

Thank you!

On Oct 11, 2023, at 1:30 PM, April Griffith <agriffith@cityofboise.org> wrote:

Hi Steven,

Sorry, I forgot to include you in this email.

Thanks,
April

From: April Griffith
Sent: Wednesday, October 11, 2023 1:30 PM
To: Kristen Chisholm <Kchisholm@achdidaho.org>
Cc: Monica Lowe <mlowe@achdidaho.org>
Subject: Site ID

Hi Kristen,

One of the sites on the COC says -12, but the container says -14. Which is correct?

Thanks,
April

ACHD Sample Filtration, Splitting, and Compositing for Metals

Sample	Split/Filter Info	Filter Used	Bottle/Lid Lots	Bottles Split	Comments
#1 Lims#: AC00322-01 Location: ACSTIC Sample Date: 10-11-23 Sample ID: -03	Split Date: 10-11-23 Start Split: 1300 Start Filter: N/A Comp Time: N/A Analyst: EDM/DKT	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☒Other: 10.0µm	Coll Jug: CC00047-20 Comp Jug: N/A SS Tubing: CC00047-39 SS Helper: SSA2 ↓ Stir Bar: SS00047-22 Connector: CC00040-06 (x2)	☒Teflon Total ☒TKN ~~☒Teflon Diss (F)~~ ☒NH_3 ☒Hg CVAA ~~☒NO_x (F)~~ ☒BOD ~~☒ortho-P (F)~~ ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	High capacity 0.45µm No DISS. Parameters
#2 Lims#: AC00322-02 Location: ACSTIC Sample Date: 10-11-23 Sample ID: -14	Split Date: 10-11-23 Start Split: 1311 Start Filter: 1315 Comp Time: N/A Analyst: EDM/DKT/SAS	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☒Other: 10.0µm	Coll Jug: _____ Comp Jug: N/A SS Tubing: CC00047-26 SS Helper: SSA4 Stir Bar: CC00047-22 Connector: CC00041-31 (x2)	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	High capacity 0.45µm
#3 Lims#: _____ Location: No other Sample Date: _____ Sample ID: samples	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☒Other: 10.0µm	Coll Jug: _____ Comp Jug: _____ SS Tubing: CC00044-92 SS Helper: SSA5 ↓ Stir Bar: CC00047-25 Connector: CC00039-71 (x2)	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	High capacity 0.45µm
#4 Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☒Other: 10.0µm	Coll Jug: _____ Comp Jug: _____ SS Tubing: CC00047-18 SS Helper: SSA7 ↓ Stir Bar: CC00041-AC Connector: CC00040-06 (x2)	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	High capacity 0.45µm
#5 Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☒Other: 10.0µm	Coll Jug: _____ Comp Jug: _____ SS Tubing: CC00047-39 SS Helper: SS9 ↓ Stir Bar: CC-00044-AD Connector: CC00039-71	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	High capacity 0.45µm

CC00040-06

ACHD Sample Filtration, Splitting, and Compositing for Metals

Sample	Split/Filter Info	Filter Used	Bottle/Lid Lots	Bottles Split	Comments
#6 Lims#: _____ Location: NO other Sample Date: samples Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☒Other: 10.0µm	Coll Jug: _____ Comp Jug: _____ SS Tubing: CC00039-99 SS Helper: SS17 ↓ Stir Bar: CC00044-AD (x2) Connector: CC00041-06	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	High capacity 0.45µm
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☐Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☐Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☐Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☐Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	

Technical Memorandum

1290 W. Myrtle St. Suite 340
Boise, ID 83702

Phone: 801.316.9859

Prepared for: Ada County Highway District

Project Title: NPDES Phase I Stormwater Support WY 2024

Project No.: 159103

Technical Memorandum

Subject: ACHD Phase I Storm Event Report for November 19, 2023

Date: February 14, 2023

To: Monica Lowe

Cc: Steven Turner

Kristen Chisholm

From: Zuly Lapa, Project Engineer

Prepared by: Zuly Lapa, EIT, Project Engineer

Reviewed by: Melissa Jannusch, PE, Project Manager

Section 1: Introduction

The Environmental Protection Agency Region 10 reissued a Municipal Separate Storm Sewer System Phase I National Pollutant Discharge Elimination System Permit (NPDES Permit), effective October 1, 2021, to Ada County Highway District (ACHD), Boise City, Ada County Drainage District No. 3, Idaho Transportation Department District 3, Boise State University, and Garden City. Under the NPDES Permit, Permittees are required to continue to conduct wet weather stormwater outfall monitoring and subwatershed monitoring. Four outfall monitoring sites (Lucky, Whitewater, Main, and Americana) and one subwatershed monitoring site (AS_6) have been established. The AS_6 site represents a subwatershed located within the Americana watershed. At each site, a minimum of three composite and three grab samples will be collected during Water Year (WY) 2024 (October 1, 2023, through September 30, 2024). The following storm event report summarizes stormwater sampling results from the November 19, 2023, storm event.

Section 2: Project Status

Table 2-1 is a summary of the sample types collected to date for WY 2024 Phase I Stormwater Outfall Monitoring. When samples are qualified, additional samples will be attempted from subsequent storms to collect unqualified samples.

Table 2-1. WY 2024 Samples Collected

Date	Lucky	Whitewater	Main	Americana	AS_6
October 10, 2023	G, C[1,2]	G	--	G, C[3]	--
November 19, 2023	G, C	G, C	G, C	G[4], C	G, C
Unqualified Samples:	2G, 1C	2G, 1C	1G, 1C	2G, 1C	1G, 1C
Samples Remaining:	1G, 2C	1G, 2C	2G, 2C	1G, 2C	2G, 2C

Notes:

-- = no samples taken

C = composite sample

G = grab sample

[1] Composite samples qualified due to lack of representativeness (50% – 75%).

[2] Incomplete water quality analysis due to low composite sample volume.

[3] Composite samples qualified due to lack of representativeness (50% – 75%) of the calculated flow volume.

[4] Grab sample qualified due to incomplete field parameter collection.

Section 3: Storm Event Summary

The November 19, 2023, storm event and the subsequent preparation and sampling efforts are detailed in the following sections.

3.1 Storm Detail

A summary of the forecast on which monitoring decisions were based is detailed below. The sampling event communication form that describes the forecast and summarizes the decision-making process from November 19, 2023, is included in Attachment A for reference.

Saturday, November 18, 2023 (Sampling Event Communication and Set Up)

- On the afternoon of November 18, the National Weather Service issued a forecast for widespread rain in the Boise area, starting November 18 at 2100 and ending on November 19 at 0000. The chance of precipitation was greater than 80%, with 0.20 to 0.30 inches of precipitation forecasted.
- Setup was accomplished in the afternoon of November 18. An expected precipitation depth of 0.11 inches was used to set trigger volumes at monitoring stations. A runoff calculations worksheet showing how the trigger volumes were calculated is included in Attachment A.

Sunday, November 19, 2023 (Storm Event)

- Moderate rain first started at approximately November 19 at 0000 and ended at 1642.
- Precipitation totals ranged between 0.42 and 0.61 inches at local rain gauges.

Flow measurements and precipitation data are listed in Table 1 along with a sampling summary. Hydrograph for the Lucky, Whitewater, Main, Americana and AS_6 site showing flow, rain, and sample collection data are included in Attachment B.

3.2 Sampling Summary

Lucky, Whitewater, Main, Americana and AS_6 monitoring stations were set up on November 18, to collect flow-proportional composite samples during the storm. Sampler enable conditions were programed into the Whitewater and Americana flowmeters. A site-specific velocity cutoff value was programmed into Lucky, Main, and AS_6 flowmeter. Setup and sampling information are included in Table 1. The field forms completed during setup/shutdown and sampling are included in Attachment C.

Grab Samples

Two, two-member team mobilized to collect stormwater runoff grab samples and verify operation of the automatic sampling equipment on November 19 at 0110. Grab samples for Lucky, Whitewater, Main, and Americana were submitted to the West Boise Water Quality Lab (WQL) at 0758 on November 19. The AS_6 grab sample was submitted at 1342 on November 19 to the WQL.

Results for grab samples, including field parameter and analytical data, are included in Table 2. Laboratory analytical reports are included in Attachment D.

Composite Samples

Composite samples were collected at the Whitewater, Main, and Americana monitoring station and submitted to the WQL at 1716 on November 19. The composite samples at the AS_6 monitoring station was submitted at 1342 and the Lucky monitoring station at 1603 on November 19 to the WQL.

Analytical results are shown in Table 2 and pollutant loading estimates for the event are detailed in Table 3. Laboratory analytical reports are included in Attachment D.

Section 4: Quality Assurance/Quality Control

A summary of quality control samples collected during the November 19, 2023, storm event is presented below in Table 4-1. A field blank and a field duplicate were collected from the Americana monitoring station. The analytical results for these samples are included in Table 4.

Table 4-1. Quality Control Samples

Sample ID	Sample Type	Parent Sample	Conclusions
231119-14-001	Field blank	Americana grab	No *E. coli* detection was reported in the field blank.
231119-14-101	Field duplicate	Americana grab	Relative percent difference was within the acceptable range.

Data quality objectives for this storm were evaluated and tracked using the data validation review checklist included in Attachment A.

An acceptable composite sample represents at least 75 percent of the total discharge or at least 6 hours of the storm duration. All composite samples met the criteria.

The acceptance and performance criteria for analytical and non-analytical criteria were met for this storm event.

Section 5: Notes and Recommendations

Whitewater

The small sampler battery died at approximately 0537 on Bottle No. 2. The battery was replaced, and the sampler program was then restarted at 0800 and continued until the end of the storm event. The battery issue resulted due to setting up the sampler program earlier in the week. It is advised to check on the small battery prior to the storm event if set-up is completed a day earlier.

AS_6

The AS_6 composite samples had two distribution errors at 0650 and 0740 on Bottle No. 2. The AS_6 sampler battery later died after taking the last composite sample but was then replaced. The sample program was restarted at 0826. There was also a No-Liquid-Error at 0953, but no succeeding errors occurred until the end of the event. It is advised to check on the small battery prior to the storm event if set-up is complete a day earlier.

Data Tables

Table 1. Sampling and Flow Summary					
	Lucky	Whitewater	Main	Americana	AS_6
Grab samples collected and submitted?	YES	YES	YES	YES	YES
Composite samples collected and submitted?	YES	YES	YES	YES	YES
Trigger volume (gal or ft^3)	2895 gal	800 ft^3	3411 gal	2960 ft^3	221 ft^3
Velocity cutoff (fps)	0.02	--	0.02	--	0.02
Sampler enable condition (in)	--	Level > 1.9"	--	Level > 6.96"	--
Runoff start time	0038	0102	0029	0000	0251
Grab sample collection time	0156	0247	0122	0151	0620
Composite sample stop time	1328	1528	1442	1407	1221
Runoff stop time	1500	1552	1446	1642	1615
Volume of Discharge Sampled (ft^3)	17,699	73,819	28,140	251,136	19,247
Total runoff volume (ft^3)	18,782	81,522	35,160	317,217	21,217
Percent of storm flow sampled (%)	94%	91%	80%	79%	91%
Composite sample duration (hrs)	11	13	13.5	12.5	9
Storm Precipitation (in)	0.42	0.61	0.50	0.50/0.58	0.50/0.58
Referenced Rain Gauge	Cynthia Mann	Whitewater	Front	Front/East	Front/East
Sampler messages (counts): Success	46	82	60	88	81
Number of composite bottles filled	2	3	3	4	4
Composite sample volume (Approx.; ml)	27,250	36,750	36,000	50,000	54,500

Notes:

– = No data.

Table 2. Field and Analytical Data Summary

Monitoring Station	Sample Date	Sample ID Grab	Field Parameters				Analytical Parameters																					
			Dissolved Oxygen	pH	Conductivity	Temperature	E. coli	Sample ID Composite	BOD_5	COD	Hardness as $CaCO_3$	Turbidity	TSS	TDS	Total Phosphorus	Orthophosphate as P	Ammonia as N	Nitrate + Nitrite as N	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
			mg/L	S.U.	uS/cm	C	mpn/100 mL		mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Lucky	11/19/2023	231119-03-WG	5.09	7.27	506.44	15.7	2.0	231119-03-WC	59.5	137	35.8	8.6	8.63	136	0.710	0.538	0.530	0.145	1.76	0.93	0.012	0.030	3.5	0.085	0.33	<0.0100	32.7
Whitewater	11/19/2023	231119-11-WG	5.82	7.34	460.32	12.96	99.0	231119-11-WC	61.9	167	45.0	19.7	27.3	180	0.958	0.768	0.527	0.182	2.07	1.7	<0.0100	0.041	5.0	0.21	2.2	<0.0100	32.3
Main	11/19/2023	231119-12-WG	9.48	7.64	174.43	10.54	30.9	231119-12-WC	19.9	61.0	19.3	11.7	16.2	61.0	0.226	0.167	0.610	0.246	1.14	0.66	0.015	0.045	2.7	0.12	1.7	<0.0100	25.9
Americana	11/19/2023	231119-14-WG	-- [3J]	-- [3J]	-- [3J]	14.16	1340.0	231119-14-WC	36.5	94.0	57.8	15.0	21.7	153	0.504	0.402	0.454	0.614	1.27	2.1	0.022	0.061	4.0	0.11	1.9	<0.0100	27.2
AS_6	11/19/2023	231119-206-WG	9.44	7.18	184.28	9.04	1732.9	231119-206-WC	162	329	43.3	21.1	28.7	263	2.06	1.71	0.563	0.136	3.17	1.7	0.029	0.059	8.5	0.93	3.3	<0.0100	61.8

Notes:

-- = No data.

[3J] Grab sample qualified due to incomplete field parameter collection.

Table 3. Event Pollutant Loading Estimates in Pounds						
Monitoring Station	Event Date	TSS	Total Phosphorus	Ammonia as N	Nitrate + Nitrite as N	TKN
Lucky	11/19/2023	10.1	0.832	0.621	0.170	2.06
Whitewater	11/19/2023	139	4.87	2.68	0.926	10.5
Main	11/19/2023	35.5	0.496	1.34	0.540	2.50
Americana	11/19/2023	430	9.98	8.99	12.2	25.1
AS_6	11/19/2023	38.0	2.73	0.746	0.180	4.20

Table 4. QC Sample Summary				
Date	Parent Sample	Sample ID	Type	E. coli
				mpn/100 mL
11/19/2023	231119-14-WG	231119-14-001	Field Blank	<1.0
11/19/2023	231119-14-WG	231119-14-101	Field Duplicate	866.4
Calculated parent/duplicate RPD				4%
Allowable RPD				40%

Attachment A: Supplemental Documents

Sampling Event Communication Form

Data Validation Checklist

Runoff Calculation Worksheet

SAMPLING EVENT COMMUNICATION FORM

Date: 11/18/2023	Time: 2:30 PM	Initials: ST
Is there a targeted sampling event during the next 36 hours? (Or, if it is Friday, is a targeted event expected before 5:00 PM Monday?)		Yes

Past 72 hr Precip	0.00”
Date and time of expected event	11/18/2023
Expected amount of precipitation	0.2 – 0.3”
Percent chance of precipitation	90%
Percent chance of >0.10” over 12 hours	Upper 80%

NWS Update

Steven from the NWS said that the rain will be moving in between 9:00 PM and midnight.
It will taper off around 6:00 – 7:00 AM on Sunday morning.
Between those times, their models are predicting .16 - .42”. I asked if he could narrow the amount down and he said 0.26” is the average.
The heavier rain will start later around 11:00 PM to 1:00 AM.

Targeted Station & Samples

Lucky	Whitewater	Main	Americana	AS_6	State (Phase II)
☒ Grab	☒ Grab	☒ Grab	☒ Grab	☒ Grab	☒ Grab
☒ Composite	☒ Composite	☒ Composite	☒ Composite	☒ Composite	☒ Composite

Type of Forecasted Precipitation

☐ Light Rain	☒ Rain	☐ Rain on Snow
☐ Scattered Showers	☐ Thunder Showers	☐ Snowmelt
☐ Other:		

Reasons for Not Targeting a Forecasted Storm and/or Stations

☐ Holiday
☐ Waiting on Antecedent Dry Period – Expires:
☐ Equipment Concerns:
☐ Other:

Text Forecast

Forecast Discussion

Hourly Forecast

Storm Event QA/QC Checklist – Phase I

STORM DATE 11/19/23

A. Event and Data Completeness	Yes	No	N/A	Notes
1. Field data sheets filled out completely and clearly	X			
2. Field parameters reviewed, and any problems/issues addressed	X			Noted missed parameters in sample Status
3. All samples collected as specified	X			
4. All samples delivered to lab promptly (review chain of custody rpts)	X			
5. Inconsistencies/clarifications discussed with sampling team member	X			Americana field parameters were incomplete.
6. All analytical reports from lab received	X			

B. Validation and Verification Methods	Yes	No	N/A	Notes
1. Outliers and unexpected values discussed with lab			X	
2. Appropriate analytical methods used	X			
3. All lab QA samples were within method acceptance criteria	X			
4. All samples reviewed and data qualifiers assigned if needed	X			
5. Data quality objective achieved	X			

C. Specific Storm and Sample QA/QC Criteria	Lucky	Whitewater	Main	Americana	AS_6	Program Criteria	Met	Qualify	Reject
1. Antecedent dry period (inches in previous 72-hours)	0.00"	0.00"	0.00"	0.00"	0.00"	< 0.11" in 72 hrs	X		
2. Precipitation (inches)	0.42	0.61	0.50	0.50/0.58	0.50/0.58	> 0.10"	X		
3. Sampled amount (% of total run-off)	94%	91%	80%	79%	91%	>= 75% or >= 6 hrs: no qualifier >= 50% and <75%: qualify < 50%: reject	X		
4. Composite sample duration (hours)	11	13	13.5	12.5	9				
4. Ecoli sample holding time (hours)	7.5	6.5	7.5	7.0	7.5	<=8 hrs: no qualifier >8 and <=16 hrs.: qualify >16 hrs.: reject	X		
5. Filtering of samples for dissolved parameter analysis (hours)	3.0	2.5	3.5	3.5	1.5	<= 24 hrs: no qualifier > 24 hrs.: reject	X		

D. Notes

Americana - Field parameters (DO, pH, cond) not recorded during grab sample collection.

Reviewed by Steven Turner **Date** 2/12/24

Approved by Monica Lowe **Date** 2/12/24

Updated 220718 TL

Storm Runoff Estimates and Trigger Volumes

Step 1. Enter runoff coefficients in yellow cells.
Step 2. Enter expected precipitation depth (in) in blue cell.
Step 3. Read trigger volumes (**bold**) in green cells.

Expected Precipitation Depth =	0.11
Aliquots per Sample =	17

Site	Area (ac)	Using RC calculated from flow data		
		RC	Expected Vol (ft^3)	Trigger Vol (ft^3)
Lucky	105	0.157	6582.5	**387**
Whitewater	498	0.069	13621.3	**801**
Main	79	0.246	7760.0	**456**
Main Alt	60	0.200	4791.6	**282**
Americana	875	0.144	50311.8	**2960**
AS_6	204	0.046	3747.0	**220**
State	34	0.160	2172.2	**128**

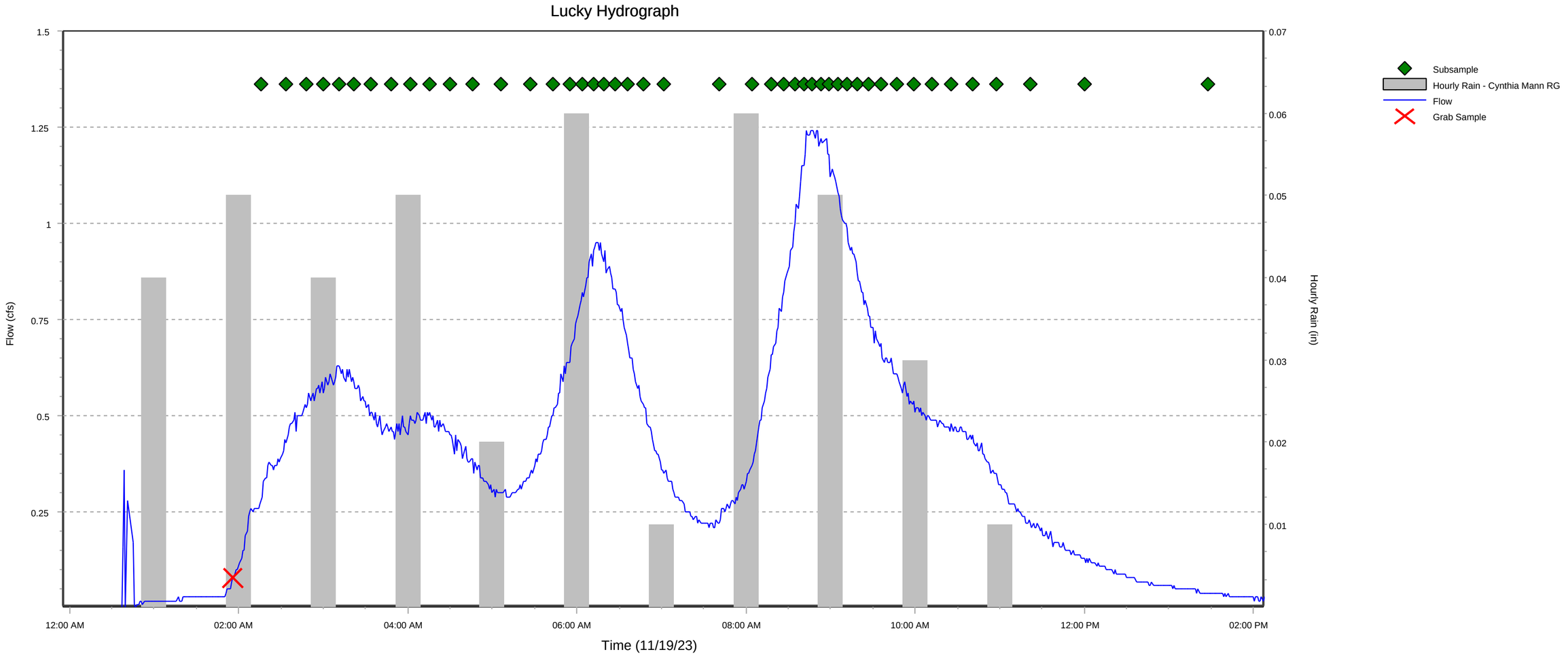
Notes:

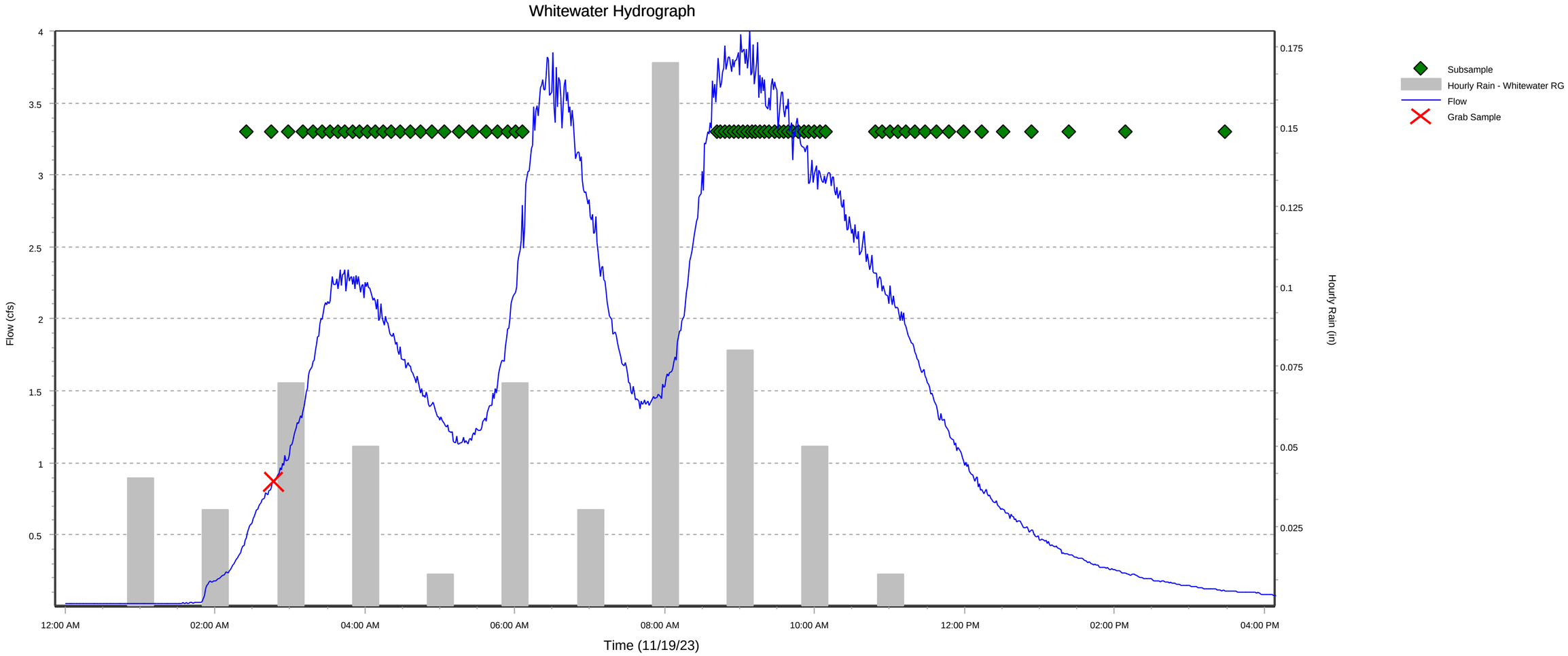
Calculated RC = Average (precip (ft) / [volume (ft^3) x area (ft^2)])

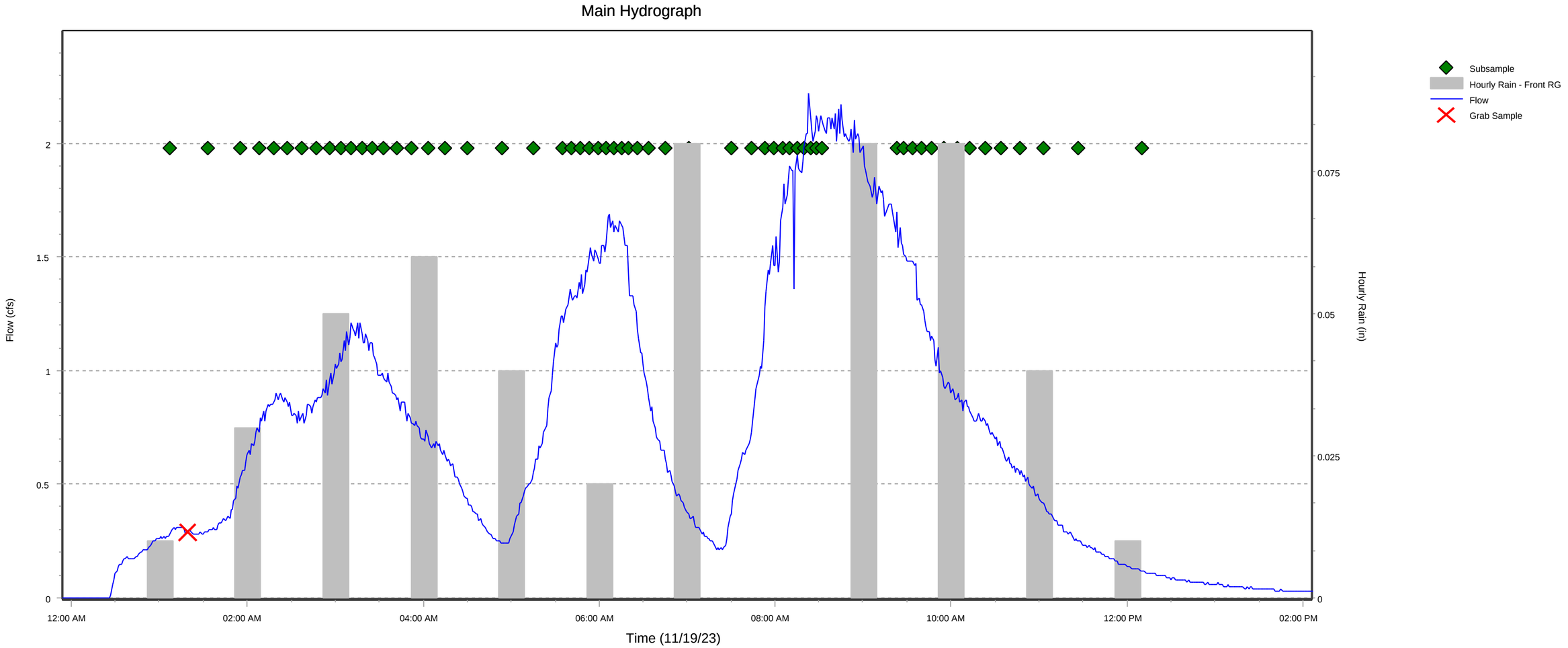
Where precip (ft) is the measured amount from local rain guage, and volume (ft^3) is the measured discharge, and area (ft^2) is the watershed area

Expected volume (ft^3) = RC x expected precip (ft) x area (ft^2)

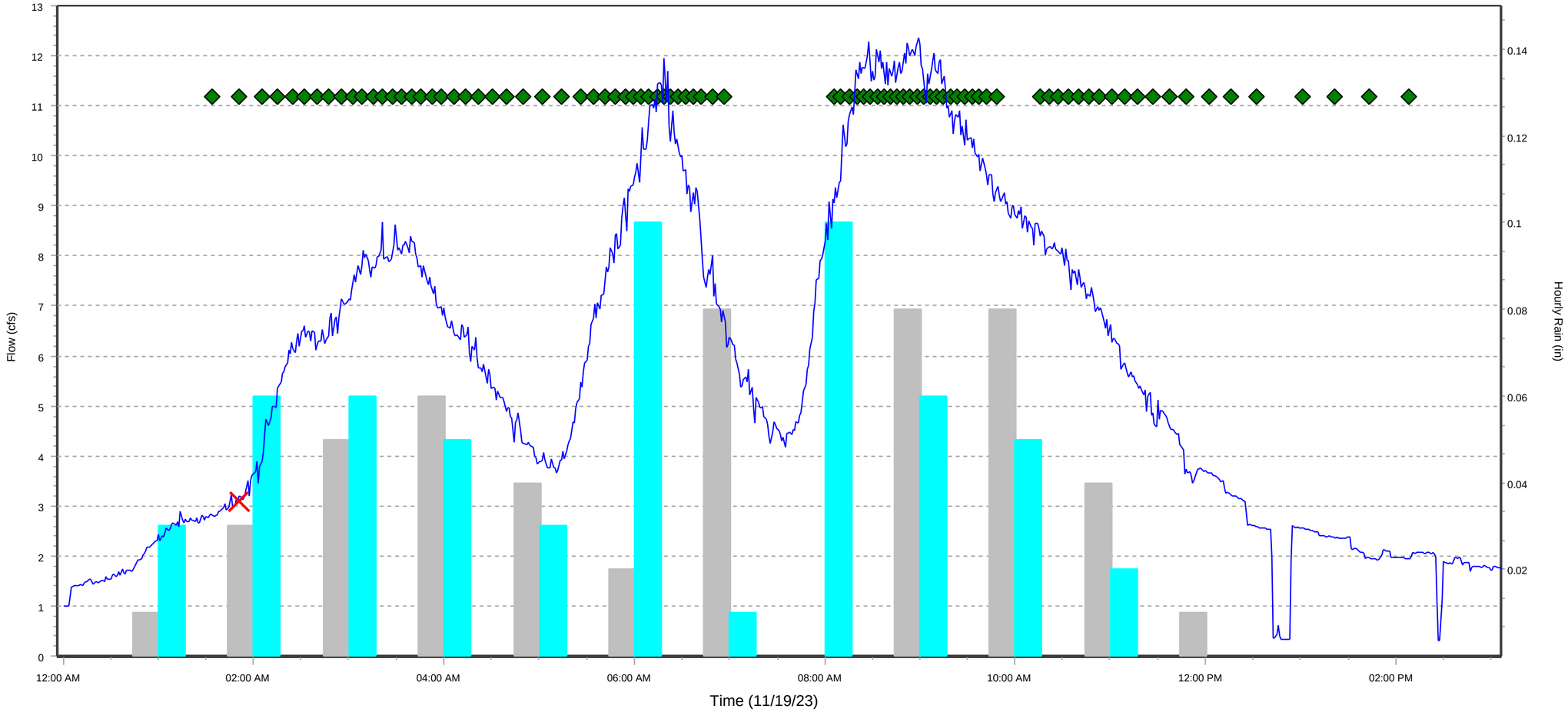
Attachment B: Storm Event Hydrographs

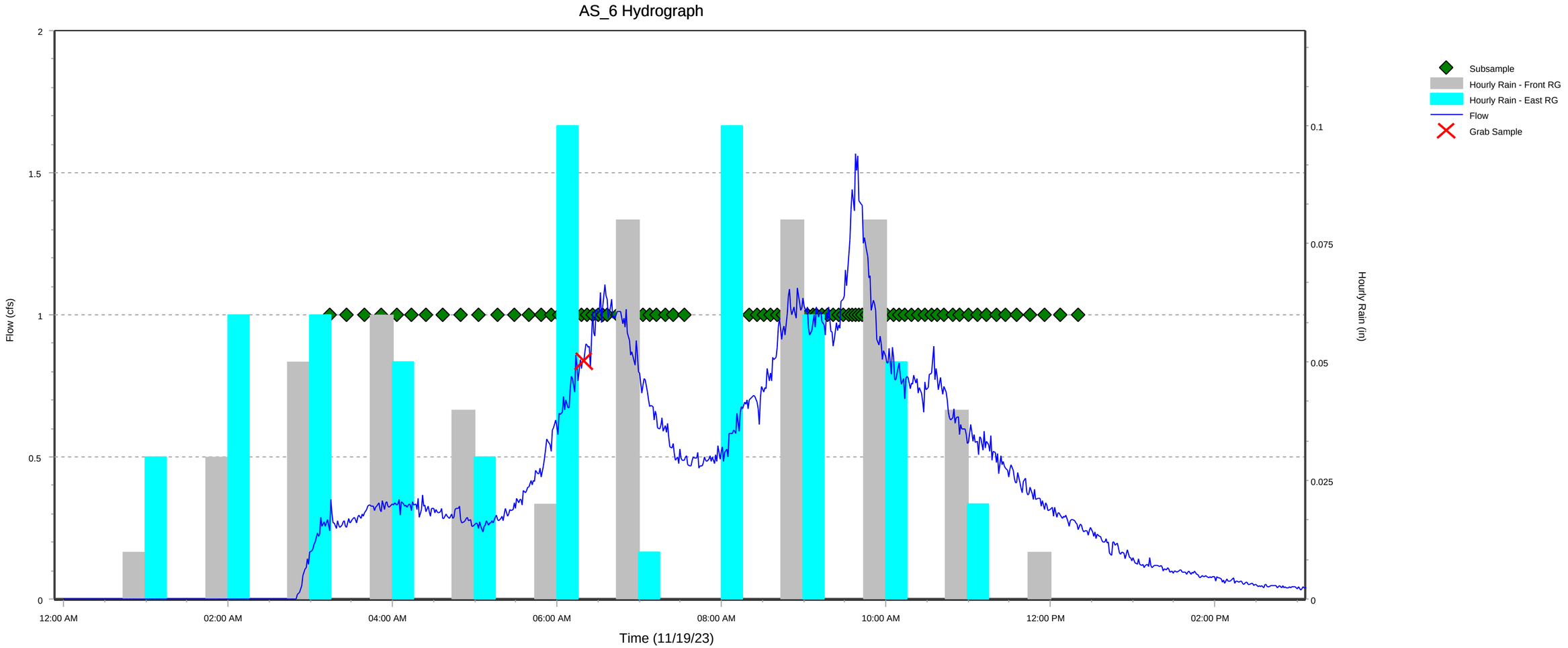

Lucky Hydrograph
Flow (cfs)
Hourly Rain (in)
Time (11/19/23)
1.5
1.25
1
0.75
0.5
0.25
0.07
0.06
0.05
0.04
0.03
0.02
0.01
12:00 AM
02:00 AM
04:00 AM
06:00 AM
08:00 AM
10:00 AM
12:00 PM
02:00 PM
Subsample
Hourly Rain - Cynthia Mann RG
Flow
Grab Sample


Whitewater Hydrograph
Flow (cfs)
Hourly Rain (in)
Time (11/19/23)
12:00 AM
02:00 AM
04:00 AM
06:00 AM
08:00 AM
10:00 AM
12:00 PM
02:00 PM
04:00 PM
0.5
1
1.5
2
2.5
3
3.5
4
0.025
0.05
0.075
0.1
0.125
0.15
0.175
Subsample
Hourly Rain - Whitewater RG
Flow
Grab Sample


Main Hydrograph
Subsample
Hourly Rain - Front RG
Flow
Grab Sample
Flow (cfs)
Hourly Rain (in)
0
0.5
1
1.5
2
0.025
0.05
0.075
12:00 AM
02:00 AM
04:00 AM
06:00 AM
08:00 AM
10:00 AM
12:00 PM
02:00 PM
Time (11/19/23)

Americana Hydrograph




AS_6 Hydrograph
Flow (cfs)
Hourly Rain (in)
Time (11/19/23)
0
0.5
1
1.5
2
0
0.025
0.05
0.075
0.1
12:00 AM
02:00 AM
04:00 AM
06:00 AM
08:00 AM
10:00 AM
12:00 PM
02:00 PM
Subsample
Hourly Rain - Front RG
Hourly Rain - East RG
Flow
Grab Sample

Attachment C: Field Forms

Set Up/ Shut Down Form – HACH (Lucky, Main, AS_6)

ATION: Lucky

SET UP

Personnel: ST, KC

Date/Time On-Site: 11/7/23 13:34

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
13:47	1.8	73.34	1.36	13.1
13:52	1.7	0.00	0	
Enable Condition or Velocity Cutoff:			~~2895 gal~~ 0.02	
Deadband:			1.0	
Trigger Volume:			~~2895 gal~~	

- ☒ Install batteries on flowmeter and sampler
- ☒ Perform decon. cycle
- ☒ Install 15L sample bottle, with ice
- ☒ Leave bottle lid at site, in a clean re-sealable plastic bag
- ☒ Verify all cable and tubing connections
- ☒ Check date and time on flowmeter and sampler
- ☒ Set flowmeter program and sampler program parameters
- ☒ Set logging interval to 1 minute
- ☐ Start flowmeter program and sampler program
- ☐ Verify running

Comments: Readings when first turned on, now reading 0's after updating No flow in Pipe.

SHUT DOWN

Personnel: ST, KC

Date/Time On-Site: 11/19/23 15:18

Time	Level (in)	Flow (~~cfs~~) GPM	Velocity (fps)	Total (cf)	Battery (V)
1522	1.91	5.76	0.1		12.8
Downloaded to:		USB-3 @15:22			

If flow monitoring is complete:	**If continuing to monitor flow:**
☒ Halt program on flowmeter	☐ Replace flowmeter battery
☒ Download flowmeter data	☐ Reset logging interval to 15 minutes
☒ Remove flowmeter battery	☐ Change velocity cutoff to 0.02 fps
	☐ Start program
	☐ Verify running

Comments:

Revised 231009 ML

Composite Sample Collection

STATION: Lucky
Personnel: ST, KC

Bottle 1 **of** 2
Date/Time On-Site: 11/19/23 710

☒ Halt sampler program	
☒ Put lid on sample bottle; label sample bottle	
Sample ID:	231119-63 -WC
Approx Sample Volume (mL):	14000mL
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	11/19/23 216	Success	13	506	
2	234		14	527	
3	248		15	543	
4	300		16	555	
5	311		17	604	
6	322		18	612	
7	334		19	619	
8	348		20	627	
9	402		21	636	
10	416		22	647	
11	430		23	702	
12	446		24		

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter ☐ Keep flowmeter running ☐ Add ice to sample transport cooler	☒ Keep flowmeter running ☒ Install new 15L bottle, add ice ☒ Restart program from beginning **Date/Time Restarted:** 11/19/23 712 ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: Lucky **Bottle** 2 **of** 2

Personnel: ST, KC **Date/Time On-Site:** _____

☑ Halt Sampler program	
☒ Put lid on sample bottle; label sample bottle	
Sample ID:	23119-03 -WC
Approx Sample Volume (mL):	13250
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	tan
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	11/19/23 741	Success	13	927	
2	804		14	936	
3	815		15	947	
4	827		16	959	
5	835		17	1012	
6	841		18	1026	
7	847		19	1041	
8	853		20	1058	
9	859		21	1122	
10	905		22	1200	
11	912		23	1328	
12	919		24		

Comments:

If sampling is complete:
- ☒ Power off sampler
- ☒ Verify flowmeter is running
- ☒ Add ice to sample transport cooler
- ☐ Complete COC form; arrange transport to lab

If continuing sampling (sample bottle change-out):
- ☐ Keep flowmeter running
- ☐ Install new 15L bottle; add ice
- ☐ Restart program from beginning

Date/Time Restarted: _____

- ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Grab Sample Data Form

STATION: Lucky

Personnel: Hannah Johnson + Gabi Karoa **Date/Time On-Site:** 11/19/2023 1:10 AM

HJ GK

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
2:06 am	2.11	9.46 am	0.15	12.8		
		9.46			?	?

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	231119-03 -WG	11/19/23	01:38 am	☑
Field Duplicate *E.Coli*	-101			☐
Field Blank *E.Coli*	-001			☐

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP09	0156 am	15.70	5.09	7.27	506.44

Sampler Current Status	
First Subsample Date/Time	N/A @ 206 am
Last Subsample Date/Time	
# of Subsamples taken	

Comments:

Revised 210924 TL

Set Up/ Shut Down Form – ISCO (Whitewater, Americana, State)

TATION: Whitewater

SET UP

Personnel: KC, ST

Date/Time On-Site: 11/17/23 1418

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1418	0.88	0.02	0.28	12.8
Enable Condition:	1.9			
Hysteresis:	1			
Flow Pulse Interval:	800 cf			

On-Site

- ☒ Replace flowmeter battery, install sampler battery
- ☒ Perform decon. cycle
- ☒ Install 15L sample bottle, with ice
- ☒ Leave bottle lid at site, in a clean re-sealable plastic bag
- ☐ Set sampler program parameters
- ☒ Check date/time on sampler
- ☒ Verify all cable and tubing connections
- ☐ Verify sampler program is running

Flowlink (Refer to PG 411 or PG 412, if needed)

- ☒ Direct or Remote; Date/time Set w/ Verpad
- ☐ Retrieve data and review recent flow history
- ☒ Change Wireless Power Control to Storm Event
- ☒ Change Data Storage Rates to 1 minute for Level, Velocity, Total Flow, and Flow Rate
- ☒ Enable Sampler: On Trigger, and set Sampler Enable equation
- ☒ Set Sampler Pacing to Flow Paced, and set trigger volume

Comments:

SHUT DOWN

Personnel: ST

Date/Time On-Site: 11/20 1248

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1259	3.08	0.495	1.083	12.6
Downloaded to:	Steven's USB			

On-Site

- ☐ Replace flowmeter battery
- ☒ Remove battery from sampler

Flowlink (Refer to Flowlink Instructions, if needed)

- ☒ Direct or Remote; Date/time 1248
- ☒ Retrieve data
- ☒ Change Wireless Power Control to Dry Weather
- ☒ Change Data Storage Rates to 15 minutes for Level, Velocity, Total Flow, and Flow Rate
- ☒ Enable Sampler: Never

Comments:

Composite Sample Collection

STATION: Whitewater **Bottle** 1 **of** 3

Personnel: ST, KC **Date/Time On-Site:** 11/19/2023 0902

☒ Halt sampler program	
☒ Put lid on sample bottle; label sample bottle	
Sample ID:	231119 - 11 -WC
Approx Sample Volume (mL):	11750 mL
Clarity (ex. Clear, Cloudy, Silty):	
Color (ex. Clear, Gray, Tan, Brown, Black):	
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	11/19/23 224	Success	13	408	
2	244		14	414	
3	258		15	421	
4	304		16	428	
5	318		17	436	
6	325		18	444	
7	332		19	453	
8	338		20	503	
9	344		21		
10	350		22		
11	357		23		
12	401		24		

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☒ Keep flowmeter running
☐ Keep flowmeter running	☒ Install new 15L bottle; add ice
☐ Add ice to sample transport cooler	☒ Restart program from beginning
	Date/Time Restarted: 11/19/23 505
	☒ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: Whitewater **Bottle** 2 **of** 3

Personnel: KC, ST **Date/Time On-Site:** 11/19/23 ~800

☐ Halt Sampler program		
☐ Put lid on sample bottle; label sample bottle		
Sample ID:	231119-11	-WC
Approx Sample Volume (mL):	15500 ml	
Clarity (ex. Clear, Cloudy, Silty):	Cloudy	
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown	
QA/QC Sample ID:	-103	(Time: 1200)

Subsample Information

Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	11/19/23 514	Success	13		
2	526	↓	14		
3	537	Power Failed	15		
4	546		16		
5	554		17		
6	600		18		
7	606	↓	19		
8			20		
9			21		
10			22		
11			23		
12			24		

Comments: Used same bottle with 24 samples on next Page.

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler	☒ Keep flowmeter running
☐ Verify Flowmeter is running	KC ☒ Install new 15L bottle; add ice Used same bottle w/ two samples.
☐ Add ice to sample transport cooler	☒ Restart program from beginning
☐ Complete COC form; arrange transport to lab	**Date/Time Restarted:** 11/19/23 ~800
	☒ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: Whitewater **Bottle** 2 **of** 3

Personnel: KC, ST **Date/Time On-Site:** 11/19/23 1045

☒ Halt Sampler program		
☒ Put lid on sample bottle; label sample bottle		
Sample ID:	231119-11	-WC
Approx Sample Volume (mL):		
Clarity (ex. Clear, Cloudy, Silty):		
Color (ex. Clear, Gray, Tan, Brown, Black):		
QA/QC Sample ID:	-103	(Time: 1200)

Subsample Information

Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	11/19/23 ~~841~~ KC 841	Success	13	923	
2	~~844~~ KC 844		14	927	
3	848		15	931	
4	851		16	935	
5	855		17	938	
6	858		18	942	
7	902		19	946	
8	905		20	951	
9	909		21	955	
10	912		22	959	
11	916		23	1004	
12	920		24	1008	

Comments: Used same bottle with 2 samples on previous page.

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler	☒ Keep flowmeter running
☐ Verify flowmeter is running	☒ Install new 15L bottle; add ice
☐ Add ice to sample transport cooler	☒ Restart program from beginning
☐ Complete COC form; arrange transport to lab	**Date/Time Restarted:** 11/19/23 1047
	☒ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: Whitewater **Bottle** 3 **of** 3

Personnel: KC, ST **Date/Time On-Site:** 11/19/23 1025

☒ Halt Sampler program	
☒ Put lid on sample bottle; label sample bottle	
Sample ID:	231119-11 -WC
Approx Sample Volume (mL):	9500
Clarity (ex. Clear, Cloudy, Silty):	Murky / Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	11/19/23 1048	Success ~~1048~~ KC	13	1253	Success
2	1054	~~1052~~	14	1323	
3	1100		15	1403	
4	1106		16	1528	
5	1113		17		
6	1120		18		
7	1128		19		
8	1137		20		
9	1147		21		
10	1159		22		
11	1213		23		
12	1231		24		

Comments:

If sampling is complete:
- ☒ Power off sampler
- ☒ Verify flowmeter is running
- ☒ Add ice to sample transport cooler
- ☒ Complete COC form; arrange transport to lab

If continuing sampling (sample bottle change-out):
- ☐ Keep flowmeter running
- ☐ Install new 15L bottle; add ice
- ☐ Restart program from beginning

Date/Time Restarted: _____

- ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Grab Sample Data Form

STATION: Whitewater

Personnel: HRJ GTK **Date/Time On-Site:** 11/19/23 2:35 am

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
02:51 am	3.91	0.94	1.44			

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	231119-11 -WG	11/19/23	02:39 am	☑
Field Duplicate *E.Coli*	-101			☐
Field Blank *E.Coli*	-001			☐

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP09	02:47 am	12.96	5.82	7.34	460.32

Sampler Current Status	
First Subsample Date/Time	2:24 am 11/19/23
Last Subsample Date/Time	2:44 11/19
# of Subsamples taken	8 2

Comments:

Revised 210924 TL

Set Up/ Shut Down Form – HACH (Lucky, Main, AS_6)

ATION: Main

SET UP

Personnel: KC, ST

Date/Time On-Site: 11/17/23 1507

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1511	0.85	0.00	0.00	12.8

Enable Condition or Velocity Cutoff:	0.02
Deadband:	1
Trigger Volume:	3411

- ☒ Install batteries on flowmeter and sampler
- ☒ Perform decon. cycle
- ☒ Install 15L sample bottle, with ice
- ☒ Leave bottle lid at site, in a clean re-sealable plastic bag
- ☒ Verify all cable and tubing connections
- ☒ Check date and time on flowmeter and sampler
- ☒ Set flowmeter program and sampler program parameters
- ☒ Set logging interval to 1 minute
- ☒ Start flowmeter program and sampler program
- ☒ Verify running

Comments:

SHUT DOWN

Personnel: ST

Date/Time On-Site: 11/20 12:13

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
1232	1.37	0	0		12.4
Downloaded to:		Frontier USB			

If flow monitoring is complete:	If continuing to monitor flow:
☒ Halt program on flowmeter	☐ Replace flowmeter battery
☒ Download flowmeter data	☐ Reset logging interval to 15 minutes
☒ Remove flowmeter battery	☐ Change velocity cutoff to 0.02 fps
	☐ Start program
	☐ Verify running

Comments:

Composite Sample Collection

STATION: Main
Personnel: ST, KC
Bottle 1 **of** 3
Date/Time On-Site: 11/19/23 0534

☑ Halt sampler program		
☒ Put lid on sample bottle; label sample bottle		
Sample ID:	231119-12	-WC
Approx Sample Volume (mL):	12500 mL	
Clarity (ex. Clear, Cloudy, Silty):	Clear/Silty	
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown	
QA/QC Sample ID:		-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	11/19/2023 107	Success	13	325	
2	133		14	333	
3	155		15	342	
4	206		16	352	
5	218		17	403	
6	227		18	415	
7	237		19	430	
8	247		20	454	
9	256		21	515	
10	304		22		
11	311		23		
12	318		24		

Comments:

If sampling is complete:
- ☐ Power off sampler, if separate from flowmeter
- ☐ Keep flowmeter running
- ☐ Add ice to sample transport cooler

If continuing sampling (sample bottle change-out):
- ☒ Keep flowmeter running
- ☒ Install new 15L bottle, add ice
- ☑ Restart program from beginning

Date/Time Restarted: 11/19/23 0525

- ☑ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: Main **Bottle** 2 **of** 3

Personnel: KC, ST **Date/Time On-Site:** 11/19/23 751

☐ Halt Sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	231119-12 -WC
Approx Sample Volume (mL):	14750
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	11/19/23 535	Success	13	701	
2	541		14	730	
3	547		15	724	
4	553		16	753	
5	559		17	759	
6	605		18	805	
7	610		19	810	
8	615		20	815	
9	620		21	820	
10	626		22	824	
11	634		23	828	
12	645		24	↓ 832	

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler	☐ Keep flowmeter running
☐ Verify Flowmeter is running	☐ Install new 15L bottle; add ice
☐ Add ice to sample transport cooler	☐ Restart program from beginning
☐ Complete COC form; arrange transport to lab	**Date/Time Restarted:** _____
	☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Revised 210907 TL

Composite Sample Collection

STATION: Main **Bottle** 3 **of** 3

Personnel: KC, ST **Date/Time On-Site:** 11/19/23 1020

☒ Halt Sampler program	
☒ Put lid on sample bottle; label sample bottle	
Sample ID:	231119 – 12 -WC
Approx Sample Volume (mL):	8750 ml
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Tan
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	11/19/23 923	Success	13	1127	Success
2	928	↓	14	1210	↓
3	934	↓	15	1442	↓
4	940	↓	16	↓	↓
5	947	↓	17	↓	↓
6	955	↓	18	↓	↓
7	1004	↓	19	↓	↓
8	1013	↓	20	↓	↓
9	1023	↓	21	↓	↓
10	1034	↓	22	↓	↓
11	1047	↓	23	↓	↓
12	1103	↓	24	↓	↓

Comments:

If sampling is complete:
- ☒ Power off sampler
- ☒ Verify flowmeter is running
- ☒ Add ice to sample transport cooler
- ☒ Complete COC form; arrange transport to lab

If continuing sampling (sample bottle change-out):
- ☐ Keep flowmeter running
- ☐ Install new 15L bottle; add ice
- ☐ Restart program from beginning

Date/Time Restarted: _____

- ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Grab Sample Data Form

STATION: Main

Personnel: ST, KC **Date/Time On-Site:** 11/19/2023 01:11

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
1:11	3.67	140.41	0.91	12.6		

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	231119-12 -WG	~~1:19~~ ST 11/19/23	1:19	☒
Field Duplicate *E.Coli*	-101			☐
Field Blank *E.Coli*	-001			☐

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP11	1:22	10.54	9.48	7.64	194.43

Sampler Current Status	
First Subsample Date/Time	11/19/2023 1:07
Last Subsample Date/Time	11/19/2023 1:07
# of Subsamples taken	1

Comments:

Revised 210924 TL

Set Up/ Shut Down Form – ISCO

TATION: Americana

SET UP

Personnel: KC, ST

Date/Time On-Site: 11/17/23 1537

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1541	5.43	-0.23	-0.291	11.78

Enable Condition:	6.96
Hysteresis:	1
Flow Pulse Interval:	~~0~~ KC 2960 cf

On-Site

- ☒ Replace flowmeter battery, install sampler battery
- ☒ Perform decon. cycle
- ☒ Install 15L sample bottle, with ice
- ☒ Leave bottle lid at site, in a clean re-sealable plastic bag
- ☒ Set sampler program parameters
- ☒ Check date/time on sampler
- ☒ Verify all cable and tubing connections
- ☒ Verify sampler program is running

Flowlink (Refer to PG 411 or PG 412, if needed)

- ☒ Direct or Remote; Date/time directly on keypad 1541
- ☐ Retrieve data and review recent flow history
- ☒ Change Wireless Power Control to Storm Event
- ☒ Change Data Storage Rates to 1 minute for Level, Velocity, Total Flow, and Flow Rate
- ☒ Enable Sampler: On Trigger, and set Sampler Enable equation
- ☒ Set Sampler Pacing to Flow Paced, and set trigger volume

Comments:

SHUT DOWN

Personnel: ST

Date/Time On-Site: 11/20 11:47

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
11:54	5.2	1.272	1.716	12.12
Downloaded to:		Stevens USB		

On-Site

- ☐ Replace flowmeter battery
- ☒ Remove battery from sampler

Flowlink (Refer to Flowlink Instructions, if needed)

- ☒ Direct or Remote; Date/time 11/27 3:58pm
- ☒ Retrieve data
- ☒ Change Wireless Power Control to Dry Weather
- ☒ Change Data Storage Rates to 15 minutes for Level, Velocity, Total Flow, and Flow Rate
- ☒ Enable Sampler: Never

Comments:

Didn't change settings back to dry weather till 11/27. Battery was dead and the last time that was read was 11/27 @ 00:02. - ST

Revised 220727 TL

Composite Sample Collection

STATION: Americana **Bottle** 1 **of** 4

Personnel: _____ **Date/Time On-Site:** _____

☑ Halt sampler program		
☑ Put lid on sample bottle; label sample bottle		
Sample ID:	231119-14	-WC
Approx Sample Volume (mL):	11750 ml	
Clarity (ex. Clear, Cloudy, Silty):	cloudy	
Color (ex. Clear, Gray, Tan, Brown, Black):	Tan/yellow	
QA/QC Sample ID:		-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	11/19/23 132	Success	13	320	
2	149		14	326	
3	204		15	332	
4	214		16	338	
5	223		17	344	
6	231		18	351	
7	239		19	357	
8	246		20	405	
9	254		21		
10	301		22		
11	307		23		
12	314		24		

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter ☐ Keep flowmeter running ☐ Add ice to sample transport cooler	☑ Keep flowmeter running ☑ Install new 15L bottle; add ice ☑ Restart program from beginning **Date/Time Restarted:** 11/19/23 0411 ☑ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: Americana **Bottle** 2 **of** 4

Personnel: _____ **Date/Time On-Site:** _____

☐ Halt Sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	231119-14- -WC
Approx Sample Volume (mL):	13250
Clarity (ex. Clear, Cloudy, Silty):	Silty
Color (ex. Clear, Gray, Tan, Brown, Black):	Tan
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	11/19/23 412	Success.	13	558	
2	420		14	603	
3	425		15	608	
4	438		16	613	
5	449		17	617	
6	501		18	621	
7	513		19	626	
8	525		20	631	
9	533		21	636	
10	540		22	641	
11	547		23	647	
12	553		24	655	

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler	☐ Keep flowmeter running
☐ Verify flowmeter is running	☐ Install new 15L bottle; add ice
☐ Add ice to sample transport cooler	☐ Restart program from beginning
☐ Complete COC form; arrange transport to lab	**Date/Time Restarted:** 0905
	☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: Anacona   **Bottle** 3 **of** 4
Personnel: KC, ST   **Date/Time On-Site:** 11/19/23 1005

☑ Halt Sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	231119 - 14 -WC
Approx Sample Volume (mL):	13250mL
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Tan
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information					
Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	11/19/23 804	Success	13	857	Success
2	809		14	901	
3	814		15	905	
4	819		16	909	
5	823		17	913	
6	827		18	918	
7	832		19	922	
8	836		20	927	
9	840		21	932	
10	844		22	936	
11	848		23	941	
12	852		24	947	

Comments:

If sampling is complete:
- ☐ Power off sampler
- ☐ Verify Flowmeter is running
- ☐ Add ice to sample transport cooler
- ☐ Complete COC form; arrange transport to lab

If continuing sampling (sample bottle change-out):
- ☑ Keep flowmeter running
- ☑ Install new 15L bottle; add ice
- ☑ Restart program from beginning

Date/Time Restarted: 11/19/23 1010
- ☑ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart									
Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: Americana
Personnel: KC, ST

Bottle 4 **of** 4
Date/Time On-Site: 11/19/23 1141

☐ Halt sampler program	
☒ Put lid on sample bottle; label sample bottle	
Sample ID:	231119-14 -WC
Approx Sample Volume (mL):	11750 mL
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Tan
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	11/19/23 1014	Success	13	11/19/23 1147	Success
2	1020		14	1201	
3	1026		15	1215	
4	1032		16	1231	
5	1039		17	1300	
6	1045		18	1320	
7	1052		19	1342	
8	1100		20	1407	
9	1108		21		
10	1116		22		
11	1126		23		
12	1136		24		

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☒ Power off sampler, if separate from flowmeter ☒ Keep flowmeter running ☒ Add ice to sample transport cooler	☐ Keep flowmeter running ☐ Install new 15L bottle; add ice ☐ Restart program from beginning **Date/Time Restarted:** _____ ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Grab Sample Data Form

STATION: Anacapa

Personnel: KC, ST **Date/Time On-Site:** 11/19/23 1400

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
0145	7.23	2.99	2.492	12.00		

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	231119 - 14 -WG	11/19/23	153	☒
Field Duplicate *E.Coli*	231119 - 14 -101	11/19/23	156	☒
Field Blank *E.Coli*	231119 - 14 -001	11/19/23	159	☒

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP11	0151	14.16			

Sampler Current Status	
First Subsample Date/Time	11/19/23 0132
Last Subsample Date/Time	11/19/23 0132
# of Subsamples taken	1

Comments:

field parameters (DO, pH, & cond) accidentally not recorded in field. WSH

Revised 210924 TL

Set Up/ Shut Down Form – HACH (Lucky, Main, AS_6)

ATION: AS_6

SET UP

Personnel: KC, ST

Date/Time On-Site: 11/17/23 1719 ~~1619~~

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1731	0.0	0.0	0.0	12.2

Enable Condition or Velocity Cutoff:	0.02
Deadband:	
Trigger Volume:	221 cf

- ☒ Install batteries on flowmeter and sampler
- ☒ Perform decon. cycle
- ☒ Install 15L sample bottle, with ice
- ☐ Leave bottle lid at site, in a clean re-sealable plastic bag
- ☒ Verify all cable and tubing connections
- ☒ Check date and time on flowmeter and sampler
- ☒ Set flowmeter program and sampler program parameters
- ☒ Set logging interval to 1 minute
- ☒ Start flowmeter program and sampler program
- ☒ Verify running

Comments:

Sample volume set to 490ml due to calibration issues.

SHUT DOWN

Personnel: ST

Date/Time On-Site: 11/20 1103

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
11:11	0.0	0.0	0.0		12.8
Downloaded to:		Rugged 6			

If flow monitoring is complete:	**If continuing to monitor flow:**
☒ Halt program on flowmeter	☐ Replace flowmeter battery
☒ Download flowmeter data	☐ Reset logging interval to 15 minutes
☒ Remove flowmeter battery	☐ Change velocity cutoff to 0.02 fps
	☐ Start program
	☐ Verify running

Comments:

Composite Sample Collection

STATION: AS-6 **Bottle** 1 **of** 4

Personnel: KC, ST **Date/Time On-Site:** 11/19/23 613

☐ Halt sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	231119-206 -WC
Approx Sample Volume (mL):	13250 mL
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Dark Brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	11/19/23 314		13	540	
2	327		14	549	
3	340		15	556	
4	352		16	602	
5	403		17	608	
6	414		18	613	
7	425		19	618	
8	437		20	622	
9	450		21	626	
10	503		22	630	
11	517		23	634	
12	529		24	637	

Comments:

Here at 2:20 but not enough flow for Grab Sample.

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☒ Keep flowmeter running
☐ Keep flowmeter running	☒ Install new 15L bottle, add ice
☐ Add ice to sample transport cooler	☒ Restart program from beginning
	Date/Time Restarted: 11/19/23 6412
	☒ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: AS-6 **Bottle** 2 **of** 4

Personnel: ST, KC **Date/Time On-Site:** 11/19/23 800

☐ Halt Sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	231119-206 -WC
Approx Sample Volume (mL):	17750
Clarity (ex. Clear, Cloudy, Silty):	Silty
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	11/19/23 644	Success	13		
2	650	distr. error	14		
3	658	Success	15		
4	703	Success	16		
5	708	"	17		
6	713	"	18		
7	719	"	19		
8	725	"	20		
9	733	"	21		
10	740	Distr. error	22		
11			23		
12			24		

Comments: Bottle completely full + water in tubing. Battery was dead. Replaced battery + restarted

If sampling is complete:	If continuing sampling (sample bottle change-out):
☐ Power off sampler	☒ Keep flowmeter running
☐ Verify flowmeter is running	☒ Install new 15L bottle; add ice
☐ Add ice to sample transport cooler	☒ Restart program from beginning
☐ Complete COC form; arrange transport to lab	**Date/Time Restarted:** 11/19/23 826
	☒ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: AS_6 **Bottle** 3 **of** 4

Personnel: VC, ST **Date/Time On-Site:** _____

☒ Halt Sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	231119-206 -WC
Approx Sample Volume (mL):	12500
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	11/19/23 821		13	910	
2	826		14	914	
3	831		15	918	
4	836		16	922	
5	841		17	926	
6	845		18	929	
7	849		19	935	
8	852		20	936	
9	856		21	938	
10	859		22	941	
11	903		23	943	
12	907		24	946	

Comments:

If sampling is complete:
- ☐ Power off sampler
- ☐ Verify Flowmeter is running
- ☐ Add ice to sample transport cooler
- ☐ Complete COC form; arrange transport to lab

If continuing sampling (sample bottle change-out):
- ☐ Keep flowmeter running
- ☐ Install new 15L bottle; add ice
- ☐ Restart program from beginning

Date/Time Restarted: _____

- ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: AS-6 **Bottle** 4 **of** 4
Personnel: KC, ST **Date/Time On-Site:** 11/19/23 1150

☐ Halt sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	-WC
Approx Sample Volume (mL):	11,000
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	11/19/23 953	No liquid err	13	1249	Success
2	957	Success	14	1054	
3	10:01		15	11:01	
4	1006		16	1107	
5	1010		17	1114	
6	1014		18	1121	
7	1019		19	11:28	
8	1024		20	1136	
9	1029		21	1146	
10	1034		22	1156	
11	1038		23	1208	
12	1043		24	1221	

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☒ Power off sampler, if separate from flowmeter ☒ Keep flowmeter running ☒ Add ice to sample transport cooler	☐ Keep flowmeter running ☐ Install new 15L bottle; add ice ☐ Restart program from beginning **Date/Time Restarted:** _____ ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Revised 220727 TL

Grab Sample Data Form

STATION: AS-6

Personnel: KC, ST **Date/Time On-Site:** 11/19/23 0613

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
622	5.794	0.90	1.62	11.7		

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	231119-206 -WG	11/19/23	622	☐
Field Duplicate *E.Coli*	-101			☐
Field Blank *E.Coli*	-001			☐

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP11	620	9.04	9.44	7.18	184.28

Sampler Current Status	
First Subsample Date/Time	11/19/2023 314
Last Subsample Date/Time	11/19/2023 622
# of Subsamples taken	20

Comments:

Revised 210924 TL

Attachment D: Storm Event Analytical Reports

Report Date: 12/08/2023 12:41

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00323-01	ACST1B	231119-03-WG	Water		11/19/2023	11/19/2023
AC00323-02	ACST1B	231119-11-WG	Water		11/19/2023	11/19/2023
AC00323-03	ACST1B	231119-12-WG	Water		11/19/2023	11/19/2023
AC00323-04	ACST1B	231119-14-WG	Water		11/19/2023	11/19/2023
AC00323-05	ACST1B	231119-14-101	Water		11/19/2023	11/19/2023
AC00323-06	ACST1B	231119-14-001	Water		11/19/2023	11/19/2023

Report Date: 12/08/2023 12:41

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Analysis Report

Location:	ACST1B	Location Description:	231119-03-WG
Date/Time Collected:	11/19/2023 01:38		
Lab Number:	AC00323-01	Sample Collector:	GK
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B234656	2.0	MPN/100 mL	1.0	1.0	IDEXX - Colilert	11/19/23 08:58	11/20/23 9:22	SMC	
Wet Chemistry										
Chlorine Screen	B234655	Absent				SM 4500-CL G-2000 mod	11/19/23	11/19/23 8:36	ASE	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 12/08/2023 12:41

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Analysis Report

Location:	ACST1B	Location Description:	231119-11-WG
Date/Time Collected:	11/19/2023 02:39		
Lab Number:	AC00323-02	Sample Collector:	GK
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B234656	99.0	MPN/100 mL	1.0	1.0	IDEXX - Colilert	11/19/23 08:58	11/20/23 9:22	SMC	
Wet Chemistry										
Chlorine Screen	B234655	Absent				SM 4500-CL G-2000 mod	11/19/23	11/19/23 8:36	ASE	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 12/08/2023 12:41

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Analysis Report

Location:	ACST1B	Location Description:	231119-12-WG
Date/Time Collected:	11/19/2023 01:19		
Lab Number:	AC00323-03	Sample Collector:	S.T
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B234656	30.9	MPN/100 mL	1.0	1.0	IDEXX - Colilert	11/19/23 08:58	11/20/23 9:22	SMC	
Wet Chemistry										
Chlorine Screen	B234655	Absent				SM 4500-CL G-2000 mod	11/19/23	11/19/23 8:36	ASE	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 12/08/2023 12:41

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Analysis Report

Location:	ACST1B	Location Description:	231119-14-WG
Date/Time Collected:	11/19/2023 01:53		
Lab Number:	AC00323-04	Sample Collector:	S.T
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B234656	1340.0	MPN/100 mL	100.0	1.0	IDEXX - Colilert	11/19/23 08:58	11/20/23 9:22	SMC	D
Wet Chemistry										
Chlorine Screen	B234655	Absent				SM 4500-CL G-2000 mod	11/19/23	11/19/23 8:36	ASE	

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Report Date: 12/08/2023 12:41

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Analysis Report

Location:	ACST1B	Location Description:	231119-14-101
Date/Time Collected:	11/19/2023 12:00		
Lab Number:	AC00323-05	Sample Collector:	S.T
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B234656	866.4	MPN/100 mL	1.0	1.0	IDEXX - Colilert	11/19/23 08:58	11/20/23 9:22	SMC	
Wet Chemistry										
Chlorine Screen	B234655	Absent				SM 4500-CL G-2000 mod	11/19/23	11/19/23 8:36	ASE	

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Report Date: 12/08/2023 12:41

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Analysis Report

Location:	ACST1B	Location Description:	231119-14-001
Date/Time Collected:	11/19/2023 12:00		
Lab Number:	AC00323-06	Sample Collector:	S.T
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B234656	<1.0	MPN/100 mL	1.0	1.0	IDEXX - Colilert	11/19/23 08:58	11/20/23 9:22	SMC	U
Wet Chemistry										
Chlorine Screen	B234655	Absent				SM 4500-CL G-2000 mod	11/19/23	11/19/23 8:36	ASE	

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Report Date: 12/08/2023 12:41

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Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Microbiology									
Batch: B234656									
Blank (B234656-BLK1)									
E. Coli	Absent						11/20/2023	SMC	
LCS (B234656-BS1)									
E. Coli				Present			11/20/2023	SMC	
Duplicate (B234656-DUP2)	Source ID: AC00323-04RE1								
E. Coli					Pass	128	11/20/2023	SMC	

Report Date: 12/08/2023 12:41

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Notes and Definitions

Item	Definition
D	Data reported from a dilution
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

Janet Finegan-Kelly
Water Quality Laboratory Manager

Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Ada County Highway District

Attn: Steven Turner
3775 Adams Street
Garden City, Idaho 83714–6418
Tel. (208) 387–6269
Fax (208) 387–6391

Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): ~~Steven Turner~~ Kristen Chisholm, Hannah Johnston, Gabriella Kanoa

Lab#	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	E. Coli - IDEXX Colilert	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
AC00323 -01	11/19/23		0138		231119-03-WG	GK	X	X												X					1
-02			0239		231119-11-WG	GK	X	X												X					1
-03			0119		231119-12-WG	ST	X	X												X					1
-04			0153		231119-14-WG	ST	X	X												X					1
-05			1200		231119-14-~~W~~ 101	ST	X	X												X					1
-06			1200		231119-14-001	ST	X	X												X					1

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
Hannah Johnston	4:04 11/19/23	ASE	Received samples 11-19-23 0758

AC00323

Report Date: 12/20/2023 13:21

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00324-01	ACST1B	231119-206-WG	Water		11/19/2023	11/19/2023
AC00324-02	ACST1C	231119-206-WC	Water		11/19/2023	11/19/2023
AC00324-03	ACST1C	231119-03-WC	Water		11/19/2023	11/19/2023
AC00324-04	ACST1C	231119-11-WC	Water		11/19/2023	11/19/2023
AC00324-05	ACST1C	231119-12-WC	Water		11/19/2023	11/19/2023
AC00324-06	ACST1C	231119-14-WC	Water		11/19/2023	11/19/2023

Report Date: 12/20/2023 13:21

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Analysis Report

Location:	ACST1B	Location Description:	231119-206-WG
Date/Time Collected:	11/19/2023 06:22		
Lab Number:	AC00324-01	Sample Collector:	S.T
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B234656	1732.9	MPN/100 mL	1.0	1.0	IDEXX - Colilert	11/19/23 13:58	11/20/23 13:59	SMC	
Wet Chemistry										
Chlorine Screen	B234655	Absent				SM 4500-CL G-2000 mod	11/19/23	11/20/23 13:52	ASE	

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Report Date: 12/20/2023 13:21

Boise City Public Works
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Analysis Report

Location:	ACST1C	Location Description:	231119-206-WC
Date/Time Collected:	11/19/2023 03:14 - 11/19/2023 12:21		
Lab Number:	AC00324-02	Sample Collector:	S.T
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B234817	0.563	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	12/01/23	12/1/23 13:36	JAL	
BOD5	B234673	162	mg/L	2.00	2.00	SM 5210 B-2016	11/20/23	11/25/23 13:42	MEC	
COD	B234668	329	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	11/20/23	11/20/23 12:29	BAK	
Nitrate-Nitrite, as N	B234773	0.136	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	11/29/23	11/29/23 13:43	JAL	
TKN	B234964	3.17	mg/L	0.800	0.200	EPA 351.2, 10-107-06-2-M (Equivalent)	12/15/23	12/15/23 10:46	JAL	D
Total Dissolved Solids	B234678	263	mg/L	20.0	20.0	SM 2540 C-2015	11/20/23	11/22/23 9:26	RKT	
Total Suspended Solids	B234665	28.7	mg/L	0.900	0.900	SM 2540 D-2015	11/20/23	11/20/23 12:06	NTS	
Turbidity	B234675	21.1	NTU	0.3	0.3	EPA 180.1, Rev. 2.0 (1993)	11/20/23	11/20/23 13:00	JAL	
Dissolved Wet Chemistry										
Orthophosphate, as P	B234672	1.71	mg/L	0.0300	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	11/20/23	11/20/23 11:43	JAL	D
Total Metals										
Mercury	B234760	<0.0100	ug/L	0.0100	0.0100	EPA 245.1	11/29/23	11/30/23 9:22	SAS	U
Arsenic	B234724	1.7	ug/L	0.070	0.070	EPA 200.8	11/25/23	11/26/23 14:05	DMW	
Cadmium	B234724	0.059	ug/L	0.010	0.010	EPA 200.8	11/25/23	11/26/23 14:05	DMW	
Calcium	B234692	11.8	mg/L	0.0400	0.0400	EPA 200.7	11/21/23	11/22/23 17:43	EDM	
Lead	B234724	3.3	ug/L	0.010	0.010	EPA 200.8	11/25/23	11/26/23 14:05	DMW	
Magnesium	B234692	3370	ug/L	80.0	80.0	EPA 200.7	11/21/23	11/22/23 17:43	EDM	
Phosphorus as P	B234692	2.06	mg/L	0.0120	0.0120	EPA 200.7	11/21/23	11/22/23 17:43	EDM	
Hardness	B234692	43.3	mg/L	0.100	0.100	SM 2340 B-2011	11/21/23	11/22/23 17:43	EDM	
Dissolved Metals										
Cadmium	B234723	0.029	ug/L	0.010	0.010	EPA 200.8	11/25/23	11/25/23 16:25	DMW	
Copper	B234723	8.5	ug/L	0.15	0.15	EPA 200.8	11/25/23	11/25/23 16:25	DMW	
Lead	B234723	0.93	ug/L	9.00E-3	9.00E-3	EPA 200.8	11/25/23	11/25/23 16:25	DMW	
Zinc	B234723	61.8	ug/L	0.50	0.50	EPA 200.8	11/25/23	11/25/23 16:25	DMW	

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Report Date: 12/20/2023 13:21

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Analysis Report

Location:	ACST1C	Location Description:	231119-03-WC
Date/Time Collected:	11/19/2023 02:16 - 11/19/2023 13:28		
Lab Number:	AC00324-03	Sample Collector:	S.T
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B234817	0.530	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	12/01/23	12/1/23 13:41	JAL	
BOD5	B234673	59.5	mg/L	2.00	2.00	SM 5210 B-2016	11/20/23	11/25/23 13:24	MEC	
COD	B234668	137	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	11/20/23	11/20/23 12:29	BAK	
Nitrate-Nitrite, as N	B234773	0.145	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	11/29/23	11/29/23 13:44	JAL	
TKN	B234779	1.76	mg/L	0.200	0.200	EPA 351.2, 10-107-06-2-M (Equivalent)	11/30/23	12/1/23 10:11	ALN	
Total Dissolved Solids	B234678	136	mg/L	20.0	20.0	SM 2540 C-2015	11/20/23	11/22/23 9:28	RKT	
Total Suspended Solids	B234665	8.63	mg/L	0.900	0.900	SM 2540 D-2015	11/20/23	11/20/23 10:04	NTS	
Turbidity	B234675	8.6	NTU	0.3	0.3	EPA 180.1, Rev. 2.0 (1993)	11/20/23	11/20/23 13:04	JAL	
Dissolved Wet Chemistry										
Orthophosphate, as P	B234672	0.538	mg/L	0.0150	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	11/20/23	11/20/23 11:45	JAL	D
Total Metals										
Mercury	B234760	<0.0100	ug/L	0.0100	0.0100	EPA 245.1	11/29/23	11/30/23 9:08	SAS	U
Arsenic	B234724	0.93	ug/L	0.070	0.070	EPA 200.8	11/25/23	11/26/23 14:15	DMW	
Cadmium	B234724	0.030	ug/L	0.010	0.010	EPA 200.8	11/25/23	11/26/23 14:15	DMW	
Calcium	B234692	8.66	mg/L	0.0400	0.0400	EPA 200.7	11/21/23	11/22/23 17:38	EDM	
Lead	B234724	0.33	ug/L	0.010	0.010	EPA 200.8	11/25/23	11/26/23 14:15	DMW	
Magnesium	B234692	3430	ug/L	80.0	80.0	EPA 200.7	11/21/23	11/22/23 17:38	EDM	
Phosphorus as P	B234692	0.710	mg/L	0.0120	0.0120	EPA 200.7	11/21/23	11/22/23 17:38	EDM	
Hardness	B234692	35.8	mg/L	0.100	0.100	SM 2340 B-2011	11/21/23	11/22/23 17:38	EDM	
Dissolved Metals										
Cadmium	B234723	0.012	ug/L	0.010	0.010	EPA 200.8	11/25/23	11/25/23 16:35	DMW	
Copper	B234723	3.5	ug/L	0.15	0.15	EPA 200.8	11/25/23	11/25/23 16:35	DMW	
Lead	B234723	0.085	ug/L	9.00E-3	9.00E-3	EPA 200.8	11/25/23	11/25/23 16:35	DMW	
Zinc	B234723	32.7	ug/L	0.50	0.50	EPA 200.8	11/25/23	11/25/23 16:35	DMW	

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Report Date: 12/20/2023 13:21

Boise City Public Works
Water Quality Laboratory
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Analysis Report

Location:	ACST1C	Location Description:	231119-11-WC
Date/Time Collected:	11/19/2023 02:24 - 11/19/2023 15:28		
Lab Number:	AC00324-04	Sample Collector:	S.T
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B234817	0.527	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	12/01/23	12/1/23 13:53	JAL	
BOD5	B234673	61.9	mg/L	2.00	2.00	SM 5210 B-2016	11/20/23	11/25/23 13:17	MEC	
COD	B234668	167	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	11/20/23	11/20/23 12:29	BAK	
Nitrate-Nitrite, as N	B234773	0.182	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	11/29/23	11/29/23 13:45	JAL	
TKN	B234779	2.07	mg/L	0.200	0.200	EPA 351.2, 10-107-06-2-M (Equivalent)	11/30/23	12/1/23 10:12	ALN	
Total Dissolved Solids	B234678	180	mg/L	20.0	20.0	SM 2540 C-2015	11/20/23	11/22/23 9:29	RKT	
Total Suspended Solids	B234665	27.3	mg/L	0.900	0.900	SM 2540 D-2015	11/20/23	11/20/23 11:05	NTS	
Turbidity	B234675	19.7	NTU	0.3	0.3	EPA 180.1, Rev. 2.0 (1993)	11/20/23	11/20/23 13:15	JAL	
Dissolved Wet Chemistry										
Orthophosphate, as P	B234672	0.768	mg/L	0.0150	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	11/20/23	11/20/23 11:46	JAL	D
Total Metals										
Mercury	B234760	<0.0100	ug/L	0.0100	0.0100	EPA 245.1	11/29/23	11/30/23 9:25	SAS	U
Arsenic	B234724	1.7	ug/L	0.070	0.070	EPA 200.8	11/25/23	11/26/23 14:17	DMW	
Cadmium	B234724	0.041	ug/L	0.010	0.010	EPA 200.8	11/25/23	11/26/23 14:17	DMW	
Calcium	B234692	13.3	mg/L	0.0400	0.0400	EPA 200.7	11/21/23	11/22/23 17:40	EDM	
Lead	B234724	2.2	ug/L	0.010	0.010	EPA 200.8	11/25/23	11/26/23 14:17	DMW	
Magnesium	B234692	2850	ug/L	80.0	80.0	EPA 200.7	11/21/23	11/22/23 17:40	EDM	
Phosphorus as P	B234692	0.958	mg/L	0.0120	0.0120	EPA 200.7	11/21/23	11/22/23 17:40	EDM	
Hardness	B234692	45.0	mg/L	0.100	0.100	SM 2340 B-2011	11/21/23	11/22/23 17:40	EDM	
Dissolved Metals										
Cadmium	B234723	<0.0100	ug/L	0.010	0.010	EPA 200.8	11/25/23	11/25/23 16:37	DMW	U
Copper	B234723	5.0	ug/L	0.15	0.15	EPA 200.8	11/25/23	11/25/23 16:37	DMW	
Lead	B234723	0.21	ug/L	9.00E-3	9.00E-3	EPA 200.8	11/25/23	11/25/23 16:37	DMW	
Zinc	B234723	32.3	ug/L	0.50	0.50	EPA 200.8	11/25/23	11/25/23 16:37	DMW	

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Analysis Report

Location:	ACST1C	Location Description:	231119-12-WC
Date/Time Collected:	11/19/2023 01:07 - 11/19/2023 14:42		
Lab Number:	AC00324-05	Sample Collector:	S.T
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B234817	0.610	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	12/01/23	12/1/23 13:49	JAL	
BOD5	B234673	19.9	mg/L	2.00	2.00	SM 5210 B-2016	11/20/23	11/25/23 13:10	MEC	
COD	B234668	61.0	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	11/20/23	11/20/23 12:29	BAK	
Nitrate-Nitrite, as N	B234773	0.246	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	11/29/23	11/29/23 13:46	JAL	
TKN	B234779	1.14	mg/L	0.200	0.200	EPA 351.2, 10-107-06-2-M (Equivalent)	11/30/23	12/1/23 10:14	ALN	
Total Dissolved Solids	B234678	61.0	mg/L	20.0	20.0	SM 2540 C-2015	11/20/23	11/22/23 9:30	RKT	
Total Suspended Solids	B234665	16.2	mg/L	0.900	0.900	SM 2540 D-2015	11/20/23	11/20/23 11:04	NTS	
Turbidity	B234675	11.7	NTU	0.3	0.3	EPA 180.1, Rev. 2.0 (1993)	11/20/23	11/20/23 13:12	JAL	
Dissolved Wet Chemistry										
Orthophosphate, as P	B234672	0.167	mg/L	3.00E-3	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	11/20/23	11/20/23 11:33	JAL	
Total Metals										
Mercury	B234760	<0.0100	ug/L	0.0100	0.0100	EPA 245.1	11/29/23	11/30/23 9:36	SAS	U
Arsenic	B234724	0.66	ug/L	0.070	0.070	EPA 200.8	11/25/23	11/26/23 14:20	DMW	
Cadmium	B234724	0.045	ug/L	0.010	0.010	EPA 200.8	11/25/23	11/26/23 14:20	DMW	
Calcium	B234692	5.87	mg/L	0.0400	0.0400	EPA 200.7	11/21/23	11/22/23 17:22	EDM	
Lead	B234724	1.7	ug/L	0.010	0.010	EPA 200.8	11/25/23	11/26/23 14:20	DMW	
Magnesium	B234692	1120	ug/L	80.0	80.0	EPA 200.7	11/21/23	11/22/23 17:22	EDM	
Phosphorus as P	B234692	0.226	mg/L	0.0120	0.0120	EPA 200.7	11/21/23	11/22/23 17:22	EDM	
Hardness	B234692	19.3	mg/L	0.100	0.100	SM 2340 B-2011	11/21/23	11/22/23 17:22	EDM	
Dissolved Metals										
Cadmium	B234723	0.015	ug/L	0.010	0.010	EPA 200.8	11/25/23	11/25/23 16:39	DMW	
Copper	B234723	2.7	ug/L	0.15	0.15	EPA 200.8	11/25/23	11/25/23 16:39	DMW	
Lead	B234723	0.12	ug/L	9.00E-3	9.00E-3	EPA 200.8	11/25/23	11/25/23 16:39	DMW	
Zinc	B234723	25.9	ug/L	0.50	0.50	EPA 200.8	11/25/23	11/25/23 16:39	DMW	

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Analysis Report

Location:	ACST1C	Location Description:	231119-14-WC
Date/Time Collected:	11/19/2023 01:32 - 11/19/2023 14:07		
Lab Number:	AC00324-06	Sample Collector:	S.T
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B234817	0.454	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	12/01/23	12/1/23 13:45	JAL	
BOD5	B234673	36.5	mg/L	2.00	2.00	SM 5210 B-2016	11/20/23	11/25/23 13:06	MEC	
COD	B234668	94.0	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	11/20/23	11/20/23 12:29	BAK	
Nitrate-Nitrite, as N	B234773	0.614	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	11/29/23	11/29/23 13:47	JAL	
TKN	B234779	1.27	mg/L	0.200	0.200	EPA 351.2, 10-107-06-2-M (Equivalent)	11/30/23	12/1/23 10:15	ALN	
Total Dissolved Solids	B234678	153	mg/L	20.0	20.0	SM 2540 C-2015	11/21/23	11/22/23 9:31	RKT	
Total Suspended Solids	B234665	21.7	mg/L	0.900	0.900	SM 2540 D-2015	11/20/23	11/20/23 10:03	NTS	
Turbidity	B234675	15.0	NTU	0.3	0.3	EPA 180.1, Rev. 2.0 (1993)	11/20/23	11/20/23 13:07	JAL	
Dissolved Wet Chemistry										
Orthophosphate, as P	B234672	0.402	mg/L	3.00E-3	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	11/20/23	11/20/23 11:37	JAL	
Total Metals										
Mercury	B234760	<0.0100	ug/L	0.0100	0.0100	EPA 245.1	11/29/23	11/30/23 9:39	SAS	U
Arsenic	B234724	2.1	ug/L	0.070	0.070	EPA 200.8	11/25/23	11/26/23 14:22	DMW	
Cadmium	B234724	0.061	ug/L	0.010	0.010	EPA 200.8	11/25/23	11/26/23 14:22	DMW	
Calcium	B234692	17.4	mg/L	0.0400	0.0400	EPA 200.7	11/21/23	11/22/23 17:24	EDM	
Lead	B234724	1.9	ug/L	0.010	0.010	EPA 200.8	11/25/23	11/26/23 14:22	DMW	
Magnesium	B234692	3490	ug/L	80.0	80.0	EPA 200.7	11/21/23	11/22/23 17:24	EDM	
Phosphorus as P	B234692	0.504	mg/L	0.0120	0.0120	EPA 200.7	11/21/23	11/22/23 17:24	EDM	
Hardness	B234692	57.8	mg/L	0.100	0.100	SM 2340 B-2011	11/21/23	11/22/23 17:24	EDM	
Dissolved Metals										
Cadmium	B234723	0.022	ug/L	0.010	0.010	EPA 200.8	11/25/23	11/25/23 16:42	DMW	
Copper	B234723	4.0	ug/L	0.15	0.15	EPA 200.8	11/25/23	11/25/23 16:42	DMW	
Lead	B234723	0.11	ug/L	9.00E-3	9.00E-3	EPA 200.8	11/25/23	11/25/23 16:42	DMW	
Zinc	B234723	27.2	ug/L	0.50	0.50	EPA 200.8	11/25/23	11/25/23 16:42	DMW	

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Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Microbiology									
Batch: B234656									
Blank (B234656-BLK1)									
E. Coli	Absent						11/20/2023	SMC	
LCS (B234656-BS1)									
E. Coli				Present			11/20/2023	SMC	
Duplicate (B234656-DUP2)	Source ID: AC00323-04RE1								
E. Coli					Pass	128	11/20/2023	SMC	
Wet Chemistry									
Batch: B234665									
Blank (B234665-BLK1)									
Total Suspended Solids	<0.9	mg/L					11/20/2023	NTS	U
LCS (B234665-BS1)									
Total Suspended Solids			97.5	90-110			11/20/2023	NTS	
Duplicate (B234665-DUP1)	Source ID: WB02817-07								
Total Suspended Solids					3.88	20	11/20/2023	NTS	
Duplicate (B234665-DUP2)	Source ID: LS01764-02								
Total Suspended Solids					3.33	20	11/20/2023	NTS	
Batch: B234668									
Blank (B234668-BLK1)									
COD	<7	mg/L					11/20/2023	BAK	U
LCS (B234668-BS1)									
COD			101	90-110			11/20/2023	BAK	
Duplicate (B234668-DUP1)	Source ID: AC00324-02								
COD					0.304	10	11/20/2023	BAK	
Batch: B234673									
Blank (B234673-BLK1)									
BOD5	<2	mg/L					11/25/2023	MEC	U
LCS (B234673-BS2)									
BOD5			110	84.6-115.4			11/25/2023	MEC	
Duplicate (B234673-DUP1)	Source ID: ST00061-02								
BOD5					1.13	30	11/25/2023	MEC	D
Duplicate (B234673-DUP2)	Source ID: AC00324-03								
BOD5					3.79	30	11/25/2023	MEC	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B234675									
Blank (B234675-BLK1)									
Turbidity	<0.3	NTU					11/20/2023	JAL	U
LCS (B234675-BS1)									
Turbidity			97.9	90-110			11/20/2023	JAL	
Duplicate (B234675-DUP1) Source ID: AC00324-06									
Turbidity					5.41	25	11/20/2023	JAL	
Batch: B234678									
Blank (B234678-BLK1)									
Total Dissolved Solids	<20	mg/L					11/22/2023	RKT	U
LCS (B234678-BS1)									
Total Dissolved Solids			95.5	90-110			11/22/2023	RKT	
Duplicate (B234678-DUP1) Source ID: AC00324-02									
Total Dissolved Solids					0.286	10	11/22/2023	RKT	
Batch: B234773									
Blank (B234773-BLK1)									
Nitrate-Nitrite, as N	<0.025	mg/L					11/29/2023	JAL	U
Blank (B234773-BLK2)									
Nitrate-Nitrite, as N	<0.025	mg/L					11/29/2023	JAL	U
LCS (B234773-BS1)									
Nitrate-Nitrite, as N			98.7	90-110			11/29/2023	JAL	
LCS (B234773-BS2)									
Nitrate-Nitrite, as N			98.8	90-110			11/29/2023	JAL	
Duplicate (B234773-DUP1) Source ID: BB03404-02									
Nitrate-Nitrite, as N					8.87	10	11/29/2023	JAL	
Duplicate (B234773-DUP2) Source ID: RW00047-01									
Nitrate-Nitrite, as N					0.228	10	11/29/2023	JAL	
Duplicate (B234773-DUP3) Source ID: WB02832-06									
Nitrate-Nitrite, as N					0.449	10	11/29/2023	JAL	
Matrix Spike (B234773-MS1) Source ID: BB03404-02									
Nitrate-Nitrite, as N			100	90-110			11/29/2023	JAL	
Matrix Spike (B234773-MS2) Source ID: RW00047-01									
Nitrate-Nitrite, as N			97.9	90-110			11/29/2023	JAL	
Matrix Spike (B234773-MS3) Source ID: WB02832-06									
Nitrate-Nitrite, as N			103	90-110			11/29/2023	JAL	
Matrix Spike Dup (B234773-MSD1) Source ID: BB03404-02									
Nitrate-Nitrite, as N			101	90-110	0.293	10	11/29/2023	JAL	
Matrix Spike Dup (B234773-MSD2) Source ID: RW00047-01									
Nitrate-Nitrite, as N			97.8	90-110	0.0212	10	11/29/2023	JAL	
Matrix Spike Dup (B234773-MSD3) Source ID: WB02832-06									
Nitrate-Nitrite, as N			104	90-110	0.135	10	11/29/2023	JAL	

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Quality Control Report
Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B234779									
Blank (B234779-BLK1)									
TKN	<0.2	mg/L					12/01/2023	ALN	U
Blank (B234779-BLK2)									
TKN	<0.2	mg/L					12/01/2023	ALN	U
LCS (B234779-BS1)									
TKN			100	80-120			12/01/2023	ALN	
LCS (B234779-BS2)									
TKN			99.5	80-120			12/01/2023	ALN	
Duplicate (B234779-DUP2) Source ID: BB03404-01									
TKN					2.65	20	12/01/2023	ALN	D
Duplicate (B234779-DUP3) Source ID: LS01768-02									
TKN					3.57	20	12/01/2023	ALN	D
Duplicate (B234779-DUP4) Source ID: RW00047-02									
TKN					2.40	20	12/01/2023	ALN	D
Matrix Spike (B234779-MS2) Source ID: BB03404-01									
TKN			95.4	80-120			12/01/2023	ALN	D
Matrix Spike (B234779-MS3) Source ID: LS01768-02									
TKN			102	80-120			12/01/2023	ALN	D
Matrix Spike (B234779-MS4) Source ID: RW00047-02									
TKN			105	80-120			12/01/2023	ALN	D
Matrix Spike (B234779-MS5) Source ID: EP00286-01									
TKN			81.5	80-120			12/01/2023	ALN	D
Matrix Spike (B234779-MS6) Source ID: EP00287-01									
TKN			101	80-120			12/01/2023	ALN	D
Matrix Spike (B234779-MS7) Source ID: EP00288-01									
TKN			97.9	80-120			12/01/2023	ALN	D
Matrix Spike (B234779-MS8) Source ID: EP00289-01									
TKN			105	80-120			12/01/2023	ALN	D
Matrix Spike (B234779-MS9) Source ID: EP00290-01									
TKN			99.1	80-120			12/01/2023	ALN	D
Matrix Spike (B234779-MSA) Source ID: EP00291-01									
TKN			102	80-120			12/01/2023	ALN	D
Matrix Spike (B234779-MSC) Source ID: EP00294-01									
TKN			104	80-120			12/01/2023	ALN	D
Matrix Spike Dup (B234779-MSD2) Source ID: BB03404-01									
TKN			98.0	80-120	1.43	20	12/01/2023	ALN	D
Matrix Spike Dup (B234779-MSD3) Source ID: LS01768-02									
TKN			102	80-120	0.104	20	12/01/2023	ALN	D
Matrix Spike Dup (B234779-MSD4) Source ID: RW00047-02									
TKN			108	80-120	1.54	20	12/01/2023	ALN	D

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B234817									
Blank (B234817-BLK1)									
Ammonia, as N	<0.035	mg/L					12/01/2023	JAL	U
LCS (B234817-BS1)									
Ammonia, as N			110	90-110			12/01/2023	JAL	
Duplicate (B234817-DUP1) Source ID: BB03379-02									
Ammonia, as N					0.316	10	12/01/2023	JAL	
Duplicate (B234817-DUP2) Source ID: BB03389-01									
Ammonia, as N					0.892	10	12/01/2023	JAL	
Matrix Spike (B234817-MS1) Source ID: BB03379-02									
Ammonia, as N			105	80-120			12/01/2023	JAL	
Matrix Spike (B234817-MS2) Source ID: BB03389-01									
Ammonia, as N			102	80-120			12/01/2023	JAL	
Matrix Spike Dup (B234817-MSD1) Source ID: BB03379-02									
Ammonia, as N			105	80-120	0.156	10	12/01/2023	JAL	
Matrix Spike Dup (B234817-MSD2) Source ID: BB03389-01									
Ammonia, as N			104	80-120	1.30	10	12/01/2023	JAL	
Batch: B234948									
Blank (B234948-BLK1)									
TKN	<0.2	mg/L					12/13/2023	EDM	U
LCS (B234948-BS1)									
TKN			100	80-120			12/13/2023	EDM	
Duplicate (B234948-DUP1) Source ID: BB03406-01									
TKN					1.18	20	12/13/2023	EDM	D
Duplicate (B234948-DUP2) Source ID: BB03408-01									
TKN					0.505	20	12/13/2023	EDM	D
Matrix Spike (B234948-MS1) Source ID: BB03406-01									
TKN			96.3	80-120			12/13/2023	EDM	D
Matrix Spike (B234948-MS2) Source ID: BB03408-01									
TKN			105	80-120			12/13/2023	EDM	D
Matrix Spike (B234948-MS4) Source ID: EP00293-01RE1									
TKN			99.4	80-120			12/13/2023	EDM	D
Matrix Spike (B234948-MS5) Source ID: EP00295-01									
TKN			103	80-120			12/13/2023	EDM	D
Matrix Spike Dup (B234948-MSD1) Source ID: BB03406-01									
TKN			92.3	80-120	1.14	20	12/13/2023	EDM	D
Matrix Spike Dup (B234948-MSD2) Source ID: BB03408-01									
TKN			104	80-120	0.586	20	12/13/2023	EDM	D

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B234964									
Blank (B234964-BLK1)									
TKN	<0.2	mg/L					12/15/2023	JAL	U
LCS (B234964-BS1)									
TKN			93.6	80-120			12/15/2023	JAL	
Duplicate (B234964-DUP2) Source ID: BB03420-03									
TKN					4.44	20	12/15/2023	JAL	D
Duplicate (B234964-DUP3) Source ID: AC00324-02RE2									
TKN					15.8	20	12/15/2023	JAL	D
Matrix Spike (B234964-MS2) Source ID: BB03420-03									
TKN			98.0	80-120			12/15/2023	JAL	D
Matrix Spike (B234964-MS3) Source ID: AC00324-02RE2									
TKN			95.8	80-120			12/15/2023	JAL	D
Matrix Spike Dup (B234964-MSD2) Source ID: BB03420-03									
TKN			106	80-120	3.42	20	12/15/2023	JAL	D
Matrix Spike Dup (B234964-MSD3) Source ID: AC00324-02RE2									
TKN			110	80-120	11.9	20	12/15/2023	JAL	D
Dissolved Wet Chemistry									
Batch: B234672									
Blank (B234672-BLK1)									
Orthophosphate, as P	<0.003	mg/L					11/20/2023	JAL	U
LCS (B234672-BS1)									
Orthophosphate, as P			95.7	90-110			11/20/2023	JAL	
Duplicate (B234672-DUP1) Source ID: AC00324-05									
Orthophosphate, as P					0.720	10	11/20/2023	JAL	
Matrix Spike (B234672-MS1) Source ID: AC00324-05									
Orthophosphate, as P			99.0	90-110			11/20/2023	JAL	
Matrix Spike Dup (B234672-MSD1) Source ID: AC00324-05									
Orthophosphate, as P			99.7	90-110	0.267	10	11/20/2023	JAL	

Report Date: 12/20/2023 13:21

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Total Metals									
Batch: B234692									
Blank (B234692-BLK1)									
Calcium	<0.04	mg/L					11/22/2023	EDM	U
Magnesium	<80	ug/L					11/22/2023	EDM	U
Phosphorus as P	<0.012	mg/L					11/22/2023	EDM	U
LCS (B234692-BS1)									
Calcium			100	85-115			11/22/2023	EDM	
Magnesium			99.6	85-115			11/22/2023	EDM	
Phosphorus as P			98.6	85-115			11/22/2023	EDM	
Duplicate (B234692-DUP1) Source ID: AC00324-06									
Calcium					0.0422	20	11/22/2023	EDM	
Magnesium					0.465	20	11/22/2023	EDM	
Phosphorus as P					0.357	20	11/22/2023	EDM	
Matrix Spike (B234692-MS1) Source ID: AC00324-06									
Calcium			100	70-130			11/22/2023	EDM	
Magnesium			101	70-130			11/22/2023	EDM	
Phosphorus as P			99.0	70-130			11/22/2023	EDM	
Matrix Spike Dup (B234692-MSD1) Source ID: AC00324-06									
Calcium			99.9	70-130	0.151	20	11/22/2023	EDM	
Magnesium			100	70-130	0.422	20	11/22/2023	EDM	
Phosphorus as P			99.3	70-130	0.191	20	11/22/2023	EDM	
Batch: B234724									
Blank (B234724-BLK1)									
Arsenic	<0.070	ug/L					11/26/2023	DMW	U
Cadmium	<0.010	ug/L					11/26/2023	DMW	U
Lead	<0.010	ug/L					11/26/2023	DMW	U
LCS (B234724-BS1)									
Arsenic			96.0	85-115			11/26/2023	DMW	
Cadmium			99.8	85-115			11/26/2023	DMW	
Lead			99.9	85-115			11/26/2023	DMW	
Duplicate (B234724-DUP1) Source ID: AC00324-02									
Arsenic					3.50	20	11/26/2023	DMW	
Cadmium					13.9	20	11/26/2023	DMW	
Lead					1.94	20	11/26/2023	DMW	
Matrix Spike (B234724-MS1) Source ID: AC00324-02									
Arsenic			96.2	70-130			11/26/2023	DMW	
Cadmium			99.4	70-130			11/26/2023	DMW	
Lead			95.5	70-130			11/26/2023	DMW	
Matrix Spike Dup (B234724-MSD1) Source ID: AC00324-02									
Arsenic			99.6	70-130	2.94	20	11/26/2023	DMW	
Cadmium			102	70-130	2.75	20	11/26/2023	DMW	
Lead			97.1	70-130	1.27	20	11/26/2023	DMW	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Total Metals (Continued)									
Batch: B234760									
Blank (B234760-BLK1)									
Mercury	<0.01	ug/L					11/30/2023	SAS	U
LCS (B234760-BS1)									
Mercury			98.9	85-115			11/30/2023	SAS	
Duplicate (B234760-DUP1) Source ID: AC00324-03									
Mercury					NR	20	11/30/2023	SAS	U
Duplicate (B234760-DUP2) Source ID: EP00285-01									
Mercury					NR	20	11/30/2023	SAS	U
Matrix Spike (B234760-MS1) Source ID: AC00324-03									
Mercury			103	70-130			11/30/2023	SAS	
Matrix Spike (B234760-MS2) Source ID: EP00285-01									
Mercury			101	70-130			11/30/2023	SAS	
Matrix Spike Dup (B234760-MSD1) Source ID: AC00324-03									
Mercury			103	70-130	0.0974	20	11/30/2023	SAS	
Matrix Spike Dup (B234760-MSD2) Source ID: EP00285-01									
Mercury			104	70-130	2.73	20	11/30/2023	SAS	
Dissolved Metals									
Batch: B234723									
Blank (B234723-BLK1)									
Cadmium	<0.010	ug/L					11/25/2023	DMW	U
Copper	<0.15	ug/L					11/25/2023	DMW	U
Lead	<0.0090	ug/L					11/25/2023	DMW	U
Zinc	<0.50	ug/L					11/25/2023	DMW	U
LCS (B234723-BS1)									
Cadmium			94.9	85-115			11/25/2023	DMW	
Copper			94.3	85-115			11/25/2023	DMW	
Lead			96.9	85-115			11/25/2023	DMW	
Zinc			93.8	85-115			11/25/2023	DMW	
Duplicate (B234723-DUP1) Source ID: AC00324-02									
Cadmium					5.41	10	11/25/2023	DMW	
Copper					0.546	10	11/25/2023	DMW	
Lead					1.75	10	11/25/2023	DMW	
Zinc					0.526	10	11/25/2023	DMW	
Matrix Spike (B234723-MS1) Source ID: AC00324-02									
Cadmium			96.5	70-130			11/25/2023	DMW	
Copper			104	70-130			11/25/2023	DMW	
Lead			93.1	70-130			11/25/2023	DMW	
Zinc			103	70-130			11/25/2023	DMW	
Matrix Spike Dup (B234723-MSD1) Source ID: AC00324-02									
Cadmium			97.9	70-130	1.50	10	11/25/2023	DMW	
Copper			103	70-130	0.713	10	11/25/2023	DMW	
Lead			94.5	70-130	1.37	10	11/25/2023	DMW	
Zinc			99.7	70-130	0.915	10	11/25/2023	DMW	

Report Date: 12/20/2023 13:21

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Notes and Definitions

Item	Definition
D	Data reported from a dilution
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

for JFK

Janet Finegan-Kelly
Water Quality Laboratory Manager

Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Ada County Highway District

Attn: Steven Turner
3775 Adams Street
Garden City, Idaho 83714–6418
Tel. (208) 387–6269
Fax (208) 387–6391

Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Steven Turner
Kristen Chisholm

Lab#	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	E. Coli - IDEXX Colilert	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
AC00324-01	11/19/23		622	622	231119-206-WG	ST		X												X					1

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
Steven Turner	11/19/2023 1:42 PM	[signature] 1/4/2	11/20/23

#AC00324

Ada County Highway District

Attn: Steven Turner
3775 Adams Street
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Tel. (208) 387–6269
Fax (208) 387–6391
Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Steven Turner
Kristen Chisholm

Lab#	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	E. Coli - IDEXX Colilert	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
*AC00324-01	11/19/23	←	314	1221	231119-206-WC	ST	X		X	X	X	X	X	X	X	XX	X	X	X		X	X	X	X	4

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
[signature]	11/19/2023 1142pm	[signature] 1342	1342 11-11-23

#AC00324

Ada County Highway District

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Tel. (208) 387–6269
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Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Kristen Chisholm, Steven Turner

Lab#	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	E. Coli - IDEXX Colilert	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
AC00324-03	11/19/23		2:16	13:28	231119-03-WC	ST	X		X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	2

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
Kristen Chisholm	11/19/23 1603	[signature] 1603	11/19/23

#AC00324-03

Ada County Highway District

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Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Steven Turner
Kristen Chisholm

Lab#	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD$_5$ - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	E. Coli - IDEXX Colilert	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
AC00324-04	11/19/23		0224	1528	231119-11-WC	ST	X		X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	3
-05			0107	1442	231119-12-WC	ST	X		X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	3
-06			0132	1407	231119-14-WC	ST	X		X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	4

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
Kristen Chisholm	11/19/23 1716	[signature] 1716	11/19/23

HAC00324-04, -05, -06

ACHD Sample Filtration, Splitting, and Compositing for Metals

	Sample	Split/Filter Info	Filter Used	Bottle/Lid Lots	Bottles Split	Comments
#1	Lims#: ACC0324-02 Location: ACSTIC Sample Date: 11-19-23 Sample ID: 23119-WC-206	Split Date: 11-19-23 Start Split: 1402 Start Filter: 1402 Comp Time: 1356 Analyst: DMW/LRT	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☑Other: 10.0µm	47-32, 47-73, 47-20 Coll Jug: 47-73 Comp Jug: CC00023-78 SS Tubing: CC00044-92 SS Helper: SSA5 ↓ Stir Bar: CC00047-50 Connector: CC00044-99 (x2)	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	0.45µm High Capacity color of Very black-looking; leaves minimal debris 4 jugs
#2	Lims#: AC00324-03 Location: ACSTIC Sample Date: 11-19-23 Sample ID: 23119-03-WC	Split Date: 11-19-23 Start Split: 1620 Start Filter: 1620 Comp Time: 1617 Analyst: DMW/LRT	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☒Other: 10.0µm	Coll Jug: 47-32, 47-88, 33-23 Comp Jug: CC00030-67 (x2) SS Tubing: CC00047-43 SS Helper: SSA8 ↓ Stir Bar: CC00047-50 Connector: CC00047-89 (x2)	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	0.45µm High Capacity Dark minimal debris 2 jugs
#3	Lims#: AC00324-06 Location: ACSTIC Sample Date: 11-19-23 Sample ID: 23119-14-WC	Split Date: 11-19-23 Start Split: 1728 Start Filter: 1728 Comp Time: 1723 Analyst: DMW/LRT	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☒Other: 10.0µm	Coll Jug: 47-32, 47-88, 47-32 Comp Jug: CC00010-72 SS Tubing: CC00047-43 SS Helper: SS12 ↓ Stir Bar: CC00047-50 Connector: CC00040-06 (x2)	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	0.45µm High Capacity Minimal debris (1) of the 16L jugs didn't have cert label. 4 jugs
#4	Lims#: AC00324-04 Location: ACSTIC Sample Date: 11-19-23 Sample ID: 23119-11-WC	Split Date: 11-19-23 Start Split: 1752 Start Filter: 1752 Comp Time: 1748 Analyst: DMW/LRT	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☒Other: 10.0µm	Coll Jug: 47-73, 47-32, Comp Jug: CC00023-78 SS Tubing: CC00039-99 SS Helper: SS17 ↓ Stir Bar: CC00047-67 (x2) Connector: CC00040-06	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	0.45µm High Capacity (1) of the 16L jugs missing cert. label. Minimal debris 3 jugs
#5	Lims#: AC00324-05 Location: ACSTIC Sample Date: 11-19-23 Sample ID: 23119-12-WC	Split Date: 11-19-23 Start Split: 1814 Start Filter: 1814 Comp Time: 1811 Analyst: DMW/LRT	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☒Other: 10.0µm	Coll Jug: 47-73, 47-88, Comp Jug: CC00011-67 SS Tubing: CC00047-85 SS Helper: SSA2 ↓ Stir Bar: CC00047-67 Connector: CC00078 (x2) 39-71 (x2)	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	0.45µm High Capacity (1) of the 16L missing cert. label. minimal debris 3 jugs

ACHD Sample Filtration, Splitting, and Compositing for Metals

Sample	Split/Filter Info	Filter Used	Bottle/Lid Lots	Bottles Split	Comments
#6 Lims#: _____ Location: _____ Sample Date: 11-19-23 Sample ID: _____	Split Date: 11-19-23 Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: DMW/ADR	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☒Other: 10.0µm	Coll Jug: _____ Comp Jug: _____ SS Tubing: CC000147-39 SS Helper: 559 ↓ Stir Bar: CC000147-90 Connector: CC000141-46 (x2)	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	0.45µm High Capacity Not Needed
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☐Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☐Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☐Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☐Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	

Technical Memorandum

1290 W. Myrtle St. Suite 340
Boise, ID 83702

Phone: 801.316.9859

Prepared for: Ada County Highway District

Project Title: NPDES Phase I Stormwater Support WY 2024

Project No.: 159103

Technical Memorandum

Subject: ACHD Phase I Storm Event Report for February 1, 2024

Date: April 23, 2024

To: Monica Lowe

Cc: Steven Turner

Kristen Chisholm

From: Zuly Lapa, Project Engineer

Prepared by: Zuly Lapa, EIT, Project Engineer

Reviewed by: Melissa Jannusch, PE, Project Manager

Section 1: Introduction

The Environmental Protection Agency Region 10 reissued a Municipal Separate Storm Sewer System Phase I National Pollutant Discharge Elimination System Permit (NPDES Permit), effective October 1, 2021, to Ada County Highway District (ACHD), Boise City, Ada County Drainage District No. 3, Idaho Transportation Department District 3, Boise State University, and Garden City. Under the NPDES Permit, Permittees are required to continue to conduct wet weather stormwater outfall monitoring and subwatershed monitoring. Four outfall monitoring sites (Lucky, Whitewater, Main, and Americana) and one subwatershed monitoring site (AS_6) have been established. The AS_6 site represents a subwatershed located within the Americana watershed. At each site, a minimum of three composite and three grab samples will be collected during Water Year (WY) 2024 (October 1, 2023, through September 30, 2024). The following storm event report summarizes stormwater sampling results from the February 1, 2024, storm event.

Section 2: Project Status

Table 2-1 is a summary of the sample types collected to date for WY 2024 Phase I Stormwater Outfall Monitoring. When samples are qualified, additional samples will be attempted from subsequent storms to collect unqualified samples.

Table 2-1. WY 2024 Samples Collected

Date	Lucky	Whitewater	Main	Americana	AS_6
October 10, 2023	G, C[1,2]	G	--	G, C[3]	--
November 19, 2023	G, C	G, C	G, C	G[4], C	G, C
February 1, 2024	G[5], C	G[5], C[6]	G[5], C	G[5], C	G[5], C
Unqualified Samples:	2G, 2C	2G, 1C	1G, 2C	1G, 2C	1G, 2C
Samples Remaining:	1G, 1C	1G, 2C	2G, 1C	2G, 1C	2G, 1C

Notes:

-- = no samples taken

C = composite sample

G = grab sample

[1] Composite samples qualified due to lack of representativeness (50%–75%).

[2] Incomplete water quality analysis due to low composite sample volume.

[3] Composite samples qualified due to lack of representativeness (50%–75%) of the calculated flow volume.

[4] Grab sample qualified due to incomplete field parameter collection.

[5] E. coli sample qualified due to exceeded hold time.

[6] Composite sample rejected due to automatic sampler triggering prior to storm event runoff. The subsamples taken prior to the event represented more than 10% of the composite volume.

Section 3: Storm Event Summary

The February 1, 2024, storm event and the subsequent preparation and sampling efforts are detailed in the following sections.

3.1 Storm Detail

A summary of the forecast on which monitoring decisions were based is detailed below. The sampling event communication form that describes the forecast and summarizes the decision-making process from February 1, 2024, is included in Attachment A for reference.

Wednesday, January 31, 2024 (Sampling Event Communication and Set Up)

- On the morning of January 31, the National Weather Service issued a forecast for widespread rain in the Boise area, starting February 1 at 0500 and ending on February 2 at 1100. The chance of precipitation was greater than 90%, with 0.50 inches of precipitation forecasted.
- Setup was accomplished in the afternoon of January 31. An expected precipitation depth of 0.3 inches was used to set trigger volumes at monitoring stations. A runoff calculations worksheet showing how the trigger volumes were calculated is included in Attachment A.

Thursday, February 1, 2024 to Friday, February 2, 2024 (Storm Event)

- Moderate rain first started at approximately February 1 at 1607 and ended on February 2 at 1305.
- Precipitation totals ranged between 0.31 and 0.37 inches at local rain gauges.

Flow measurements and precipitation data are listed in Table 1 along with a sampling summary. Hydrograph for the Lucky, Whitewater, Main, Americana and AS_6 site showing flow, rain, and sample collection data are included in Attachment B.

3.2 Sampling Summary

Lucky, Whitewater, Main, Americana and AS_6 monitoring stations were set up on January 31, to collect flow-proportional composite samples during the storm. Sampler enable conditions were programed into the Lucky, Whitewater, Main and Americana flowmeters. A site-specific velocity cutoff value was programmed into AS_6 flowmeter. Setup and sampling information are included in Table 1. The field forms completed during setup/shutdown and sampling are included in Attachment C.

Grab Samples

Two, two-member teams mobilized to collect stormwater runoff grab samples and verify operation of the automatic sampling equipment on February 1 at 1800. Grab samples for Lucky, Whitewater, Main, Americana, and AS_6 were submitted to the West Boise Water Quality Lab (WQL) at 2032 on February 1.

Results for grab samples, including field parameter and analytical data, are included in Table 2. Laboratory analytical reports are included in Attachment D.

Composite Samples

Composite samples were collected at the Main, Americana and AS_6 monitoring station and submitted to the WQL at 1101 and 1102 on February 2. The composite samples at Lucky and Whitewater monitoring stations were submitted to the WQL at 1154 on February 2.

Analytical results are shown in Table 2 and pollutant loading estimates for the event are detailed in Table 3. Laboratory analytical reports are included in Attachment D.

Section 4: Quality Assurance/Quality Control

A summary of quality control samples collected during the February 1, 2024, storm event is presented below in Table 4-1. A field blank and field duplicate was collected from the Lucky monitoring station and a lab duplicate/composite split was collected from the Whitewater monitoring station. The analytical results for these samples are included in Table 4-1.

Table 4-1. Quality Control Samples

Sample ID	Sample Type	Parent Sample	Conclusions
240201-14-001	Field blank	Lucky grab	No *E. coli* detection was reported in the field blank.
240201-14-101	Field duplicate	Lucky grab	Relative percent difference was not within the acceptable range. Field duplicate qualified due to exceeding *E. coli* hold time.
240201-11-103	Lab duplicate/composite split	Whitewater composite	The Whitewater composite parent sample was rejected due to non-stormwater subsamples, leading to an inaccurate relative percent difference.

Data quality objectives for this storm were evaluated and tracked using the data validation review checklist included in Attachment A.

An acceptable composite sample represents at least 75 percent of the total discharge or at least 6 hours of the storm duration. All composite samples, except for Whitewater, met the criteria. However, all the grab samples, including the QC field duplicate were qualified due to *E. coli* exceeding hold time. A grab sample is qualified if the sample is prepared 8 to 16 hours after sample collection. Samples are rejected if prepared 16 hours or later after sample collection. All samples were prepared within approximately 12 hours of sample collection and are therefore qualified.

Prior to the start of the storm precipitation or runoff, five subsamples were successfully collected by the automatic sampler at the Whitewater monitoring site. These subsamples are considered non-stormwater, as there was no evidence of flow or precipitation during the morning of January 31st through the afternoon of February 1st. Following the SWOMP guidelines, calculations were conducted to determine if the non-stormwater subsample volume accounted for 10% of the total composite sample volume. The non-stormwater composite subsamples accounted for 12% of the total composite sample volume (see Table 4-2), rejecting the Whitewater composite sample.

Table 4-2. Non-Stormwater Subsample Evaluation

Composite Sample Volume (ft^3)	Non-Stormwater Subsample Volume (ft^3)	Non-stormwater Subsample Ratio
74,325	8,744	12 %

Section 5: Notes and Recommendations

Whitewater

The sampling team identified the automatic sampler's clock was not synchronized with the flowmeter, resulting in incorrect subsample times displayed on the sampler. The sampling team recorded actual composite subsample times from the flow meter prior to submitting the chain of custody form to the WQL. Additionally, the five subsamples collected before the start of storm flow were due to a flowmeter programming error. It was determined the STORM EVENT and SAMPLER ENABLE equations were assigned the wrong threshold conditions. Specifically, STORM EVENT had the threshold condition assigned rather than the timetable condition. SAMPLER ENABLE had the timetable equation set. Therefore, the flowmeter was incorrectly programmed to enable the sampler 24 hours a day and pull a sample every 2185 cubic feet

without a minimum level condition. The early subsamples appear to be equally spaced apart because of the poor velocity signal, which resulted in the velocity reading a constant value before the start of storm flow. In the case of poor velocity signal readings, the flowmeter will continue to record the last velocity reading until it is able to get another valid reading. For this reason, the sampler was collecting subsamples before increased levels as expected during storm flows.

AS_6

After collecting the grab sample at AS_6, the sampling team noticed a build-up of leaves on the sensor. The sampling team immediately cleared the sensor, and flow started moving rapidly. The removal of leaves seemed to normalize the flow.

Data Tables

Table 1. Sampling and Flow Summary					
	Lucky	Whitewater	Main	Americana	AS_6
Grab samples collected and submitted?	YES	YES	YES	YES	YES
Composite samples collected and submitted?	YES	YES	YES	YES	YES
Trigger volume (gal or ft^3)	7899 gal	2185 ft^3	9313 gal	8071 ft^3	601 ft^3
Velocity cutoff (fps)	--	--	--	--	0.02
Sampler enable condition (in)	Level > 2.68"	Level > 2.55" [4]	Level > 2.06"	Level > 6.46"	--
Runoff start time	1747 [1]	1647 [1]	1657 [1]	1607 [1]	1823 [1]
Grab sample collection time	1825	1859	1815	1841	1906
Composite sample stop time	0926	1016	0757	0936	0936
Runoff stop time	1135 [2]	1305 [2]	1132 [2]	1220 [2]	1108 [2]
Volume of discharge sampled (ft^3)	12,963	74,325 [3]	17,733	216,570	13,220
Volume of non-stormwater subsamples (ft^3)	--	8,744	--	--	--
Total runoff volume (ft^3)	14,425	71,141	19,927	260,647	15,912
Percent of storm flow sampled (%)	90%	104% [3]	89%	83%	83%
Percent of non-stormwater volume to total discharge sampled volume (%)	--	12%	--	--	--
Composite sample duration (hrs)	14.5	40 [3]	13	13.5	10.5
Storm Precipitation (in)	0.31	0.33	0.31	0.31/0.37	0.31/0.37
Referenced Rain Gauge	Cynthia Mann	Whitewater	Front	Front/East	Front/East
Sampler messages (counts): Success	13	36	15	29	24
Number of composite bottles filled	1	2	1	2	2
Composite sample volume (Approx.; ml)	7,250 ml	19000 ml	10250 ml	14500 ml	24400 ml

Notes:

– = No data.

[1] Storm runoff started on 2/1/24

[2] Storm runoff ended on 2/2/24

[3] Non stormwater samples were collected prior to the start of storm percipitation or runoff

[4] Programming error occurred at setup

Table 2. Field and Analytical Data Summary

Monitoring Station	Sample Date	Sample ID Grab	Field Parameters				Analytical Parameters																					
			Dissolved Oxygen	pH	Conductivity	Temperature	E. coli	Sample ID Composite	BOD_5	COD	Hardness as $CaCO_3$	Turbidity	TSS	TDS	Total Phosphorus	Orthophosphate as P	Ammonia as N	Nitrate + Nitrite as N	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
			mg/L	S.U.	uS/cm	C	mpn/100 mL		mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Lucky	2/1/2024	240201-03-WG	4.92	7.15	593.29	14.62	<1.0 [4J]	240201-03-WC	7.27	39.0	16.0	60.5	18.8	52.8	0.174	0.100	0.173	0.204	0.894	0.85	<0.0100	0.024	2.0	0.056	0.82	<0.0100	17.5
Whitewater	2/1/2024	240201-11-WG	8.42	7.60	287.02	11.10	68.9 [4J]	240201-11-WC	9.34 [1R]	82 [1R]	43 [1R]	106 [1R]	58.4 [1R]	139 [1R]	0.321 [1R]	0.171 [1R]	0.169 [1R]	0.375 [1R]	1.33 [1R]	2.4 [1R]	<0.0100 [1R]	0.058 [1R]	3.9 [1R]	0.18 [1R]	4.8 [1R]	0.0148 [1R]	25.7 [1R]
Main	2/1/2024	240201-12-WG	10.11	8.03	353.6	6.30	238.2 [4J]	240201-12-WC	5.74	77.0	18.3	103	59.8	64.2	0.143	0.0557	0.351	0.209	1.12	1.4	0.012	0.066	3.6	0.084	4.1	0.0112	18.4
Americana	2/1/2024	240201-14-WG	10.05	7.73	552.2	8.34	65.0 [4J]	240201-14-WC	6.98	55.0	93.3	89.6	50.7	224	0.213	0.116	0.193	0.905	1.05	3.4	0.016	0.063	3.4	0.090	4.2	<0.0100	17.3
AS_6	2/1/2024	240201-206-WG	9.33	8.03	542.9	5.55	290.9 [4J]	240201-206-WC	11.6	108	16.8	143	70.3	116	0.464	0.285	0.159	0.191	1.83	3.0	0.013	0.077	4.5	0.29	6.7	0.0168	10.5

Notes:

– = No data.

[1R] Composite sample rejected due to non stormwater sample volume comprising 10% or more of the the total composite sample volume

[4J] E. coli sample qualified due to exceeded hold time

Table 3. Event Pollutant Loading Estimates in Pounds						
Monitoring Station	Event Date	TSS	Total Phosphorus	Ammonia as N	Nitrate + Nitrite as N	TKN
Lucky	2/1/2024	16.9	0.157	0.156	0.184	0.805
Whitewater	2/1/2024	168 [1R]	0.92 [1R]	0.750 [1R]	1.08 [1R]	3.81 [1R]
Main	2/1/2024	74.4	0.178	0.437	0.260	1.39
Americana	2/1/2024	825	3.46	3.140	14.7	17.1
AS_6	2/1/2024	69.8	0.46	0.158	0.190	1.82

Notes:

[1R] Composite sample rejected due to non stormwater sample volume comprising 10% or more of the the total composite sample volume

Table 4. QC Sample Summary

Date	Parent Sample	Sample ID	Type	E. coli	BOD_5	COD	Hardness as CaCO3	Turbidity	TSS	TDS	Total Phosphorus	Orthophosphate as P	Ammonia as N	Nitrate + Nitrite as N	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
				mpn/100 mL	mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
2/1/2024	240201-03-WG	240201-03-001	Field Blank	<1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2/1/2024	240201-03-WG	240201-03-101	Field Duplicate	2 [4J]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calculated parent/duplicate RPD [1]				100%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Allowable RPD				40%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
2/1/2024	240201-11-WC	240201-11-103	Lab Duplicate/Composite Split	--	8.9	83.0	42.4	113	53.8	140	0.312	0.172	0.170	0.378	1.35	2.4	0.011	0.052	3.7	0.19	4.9	0.0127	26.6
Calculated parent/duplicate RPD [2]				--	5%	1%	1%	6%	8%	1%	3%	1%	1%	1%	1%	0%	10%	11%	5%	5%	2%	15%	3%
Allowable RPD				40%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%

Notes:

[1] Relative percent difference was not within the acceptable range. Field duplicate qualified due to exceeding E. Coli hold time

[2] The Whitewater composite parent sample was rejected due to non-stormwater subsamples, leading to an innacurate relative percent difference

[4J] E.coli sample qualified due to exceeded hold time

Attachment A: Supplemental Documents

Sampling Event Communication Form

Data Validation Checklist

Runoff Calculation Worksheet

SAMPLING EVENT COMMUNICATION FORM

Date: 01/31/2024	Time: 9:39 AM	Initials: ML
Is there a targeted sampling event during the next 36 hours? (Or, if it is Friday, is a targeted event expected before 5:00 PM Monday?)		Yes

Past 72 hr Precip	0.06”
Date and time of expected event	2/1/2024 5am – 2/2/2024 5am-11am?
Expected amount of precipitation	Up to 0.5”
Percent chance of precipitation	9O%
Percent chance of >0.10” over 12 hours	30-40% during Thursday 5am-5Pm

NWS Update

I spoke with Bill from the NWS. They said precip could start as early as 5-8am Thursday morning but are only expecting maybe a tenth throughout the day. Precip expected to pick up in the afternoon and into the evening especially after 5PM. The storm is predicted to be continuous and widespread once it starts with breaks and rain shadowing unlikely. Storm should be over ~5am but could be as late as 11am depending pace of storm.

Targeted Station & Samples

Lucky	Whitewater	Main	Americana	AS_6	State (Phase II)
☒ Grab	☒ Grab	☒ Grab	☒ Grab	☒ Grab	☒ Grab
☒ Composite	☒ Composite	☒ Composite	☒ Composite	☒ Composite	☒ Composite

Type of Forecasted Precipitation

☐ Light Rain	☒ Rain	☐ Rain on Snow
☐ Scattered Showers	☐ Thunder Showers	☐ Snowmelt
☐ Other:		

Reasons for Not Targeting a Forecasted Storm and/or Stations

☐ Holiday
☐ Waiting on Antecedent Dry Period – Expires:
☐ Equipment Concerns:
☐ Other:

Text Forecast

NWS Forecast for: 2 Miles NNW Garden City ID
Issued by: National Weather Service Boise, ID
Last Update: 3:29 am MST Jan 31, 2024

Today: Mostly sunny, with a high near 63. Southeast wind 7 to 17 mph, with gusts as high as 26 mph.
Tonight: A 20 percent chance of rain after 11pm. Mostly cloudy, with a low around 44. East southeast wind 13 to 15 mph, with gusts as high as 24 mph.
Thursday: Rain. High near 56. Southeast wind 14 to 16 mph, with gusts as high as 25 mph. Chance of precipitation is 90%. New precipitation amounts between a tenth and quarter of an inch possible.
Thursday Night: Rain. Low around 39. Southeast wind 5 to 9 mph becoming light and variable in the evening. Chance of precipitation is 80%. New precipitation amounts between a quarter and half of an inch possible.
Friday: Rain likely, mainly before 11am. Mostly cloudy, with a high near 48. West northwest wind 3 to 8 mph. Chance of precipitation is 60%.
Friday Night: A 40 percent chance of rain. Mostly cloudy, with a low around 35.
Saturday: A 30 percent chance of rain, mainly before 11am. Mostly cloudy, with a high near 45.
Saturday Night: Mostly cloudy, with a low around 31.

Sunday: Mostly sunny, with a high near 47.
Sunday Night: A 40 percent chance of rain, mainly after 11pm. Mostly cloudy, with a low around 35.
Monday: A chance of rain and snow. Mostly cloudy, with a high near 49. Chance of precipitation is 50%.
Monday Night: A 50 percent chance of rain. Mostly cloudy, with a low around 36.
Tuesday: A 50 percent chance of rain. Mostly cloudy, with a high near 49.

Forecast Discussion

National Weather Service Boise ID
243 AM MST Wed Jan 31 2024

.SHORT TERM...Today through Friday night...A pattern shift towards **normal** late winter conditions is expect on Thursday as the large **upper level** low reaches the Pacific Northwest. However, until then, unseasonably warm temperatures will continue today with record high temperatures forecast for several valley locations. The approaching Pacific system will enhance the pressure **gradient** for gusty southeast winds in the Snake Plain today. Gusts are expected to be in the 30-40 mph range.

Expect record temperatures in the Treasure Valley today aid by a much stronger southeasterly winds in response to the approaching **upper level** low. Model guidance has consistently under forecast temperatures the last 6 days and looks to be under forecasting today by another 3 to 5 degrees. Thus, used a bias corrected **analog** which has worked well the last couple of nights. This correction gives a 70% chance of Boise reaching 64 degrees or greater today. The forecast high of 64 would not only break the daily record of 61, but also tie the all-time record of 63 (set on Jan 9, 1953). Temperatures will start to cool down on Thursday with the arrival of widespread clouds and precipitation. A **Public Information Statement**, BOIPNSBOI, includes the updated forecast highs and records.

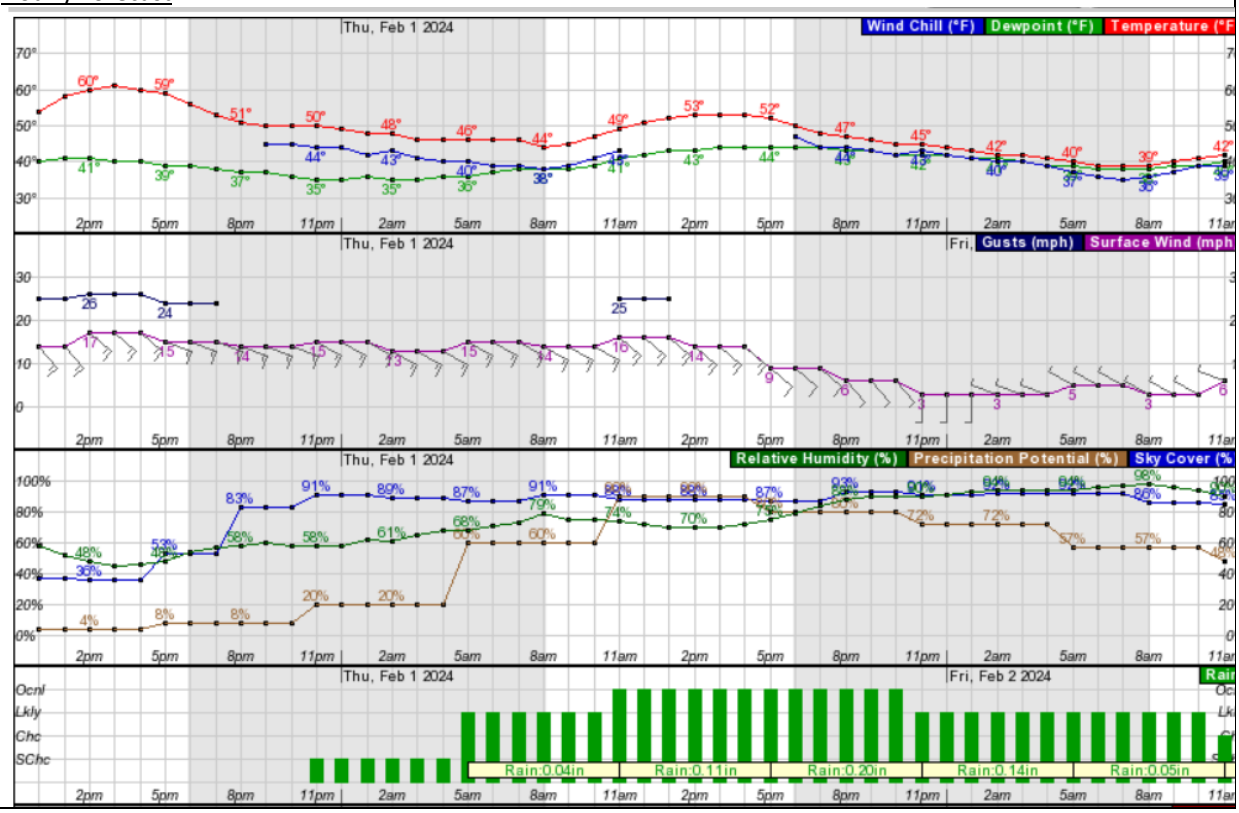
Fog and **stratus** has remained persistent across the valleys of Southeast Oregon the last couple of days. However, this should begin to dissipate today with better mixing and increased surface winds ahead of the next system.

A very moist plume of Pacific moisture off the west coast, known as an atmospheric river, associated with an upper level low pressure system, will move inland this afternoon. This will spread the moisture across our area late tonight into Thursday. Snow levels near 7000 feet today will lower to around 6000 feet on Thursday. Accumulating snow will be limited to the mountains. Precipitation totals of up to a half inch in the valleys and an inch in the mountains are expected.

.LONG TERM...Saturday through Wednesday...A weak **upper level trough** remains over the region Saturday and Sunday continuing the threat for light snow showers in the mountains and a mix of rain and snow in the valleys. The **low pressure system** over the west coast will again interact with another plume of **moisture** from the Central Pacific (or Atmospheric River) on Sunday which which looks to spread across our area from the southwest on Monday. Snow levels remain around 4000 feet for snow in the mountains and cold rain in the valleys. There is growing confidence in the system for Monday however, there is quite a large spread on the amount of **moisture** that makes it into the Intermountain West. Colder but drier conditions follow as the

the region remains on under a large scale trough as the low center continues south along the California coast.

Hourly Forecast



Storm Event QA/QC Checklist – Phase I

STORM DATE 2/1/24

A. Event and Data Completeness	Yes	No	N/A	Notes
1. Field data sheets filled out completely and clearly	X			
2. Field parameters reviewed, and any problems/issues addressed	X			Whitewater FM and SA clocks werent synced during setup
3. All samples collected as specified	X			
4. All samples delivered to lab promptly (review chain of custody rpts)	X			
5. Inconsistencies/clarifications discussed with sampling team member			X	
6. All analytical reports from lab received	X			

B. Validation and Verification Methods	Yes	No	N/A	Notes
1. Outliers and unexpected values discussed with lab			X	
2. Appropriate analytical methods used	X			
3. All lab QA samples were within method acceptance criteria	X			
4. All samples reviewed and data qualifiers assigned if needed	X			
5. Data quality objective achieved	X			

C. Specific Storm and Sample QA/QC Criteria	Lucky	Whitewater	Main	Americana	AS_6	Program Criteria	Met	Qualify	Reject
1. Antecedent dry period (inches in previous 72-hours)	0.00	0.00	0.00	0.00	0.00	< 0.11" in 72 hrs	X		
2. Precipitation (inches)	0.31	0.33	0.31	0.31/0.37	0.31/0.37	> 0.10"	X		
3. Sampled amount (% of total run-off)	90%	104%*	89%	83%	83%	>= 75% or >= 6 hrs: no qualifier >= 50% and <75%: qualify < 50%: reject	X		X ww
4. Composite sample duration (hours)	14.5	40	13	13.5	10.5				
4. Ecoli sample holding time (hours)	12	11.5	12	12	12	<=8 hrs: no qualifier >8 and <=16 hrs.: qualify >16 hrs.: reject		X	
5. Filtering of samples for dissolved parameter analysis (hours)	3.5	2.0	3.0	2.0	2.0	<= 24 hrs: no qualifier > 24 hrs.: reject	X		

D. Notes

E. Coli samples were qualified due to exceeded holding times from all sites.
* Whitewater composite rejected due to >10% total sample volume composed of non-stormwater.

Reviewed by Steven Turner **Date** 4/4/24

Approved by Monica Love **Date** 4/9/24

Storm Runoff Estimates and Trigger Volumes

Step 1. Enter runoff coefficients in yellow cells.
Step 2. Enter expected precipitation depth (in) in blue cell.
Step 3. Read trigger volumes (**bold**) in green cells.

Expected Precipitation Depth = 0.3
Aliquots per Sample = 17

Site	Area (ac)	Using RC calculated from flow data		
		RC	Expected Vol (ft^3)	Trigger Vol (ft^3)
Lucky	105	0.157	17952.2	**1056**
Whitewater	498	0.069	37149.1	**2185**
Main	79	0.246	21163.6	**1245**
Main Alt	60	0.200	13068.0	**769**
Americana	875	0.144	137214.0	**8071**
AS_6	204	0.046	10219.2	**601**
State	34	0.160	5924.2	**348**

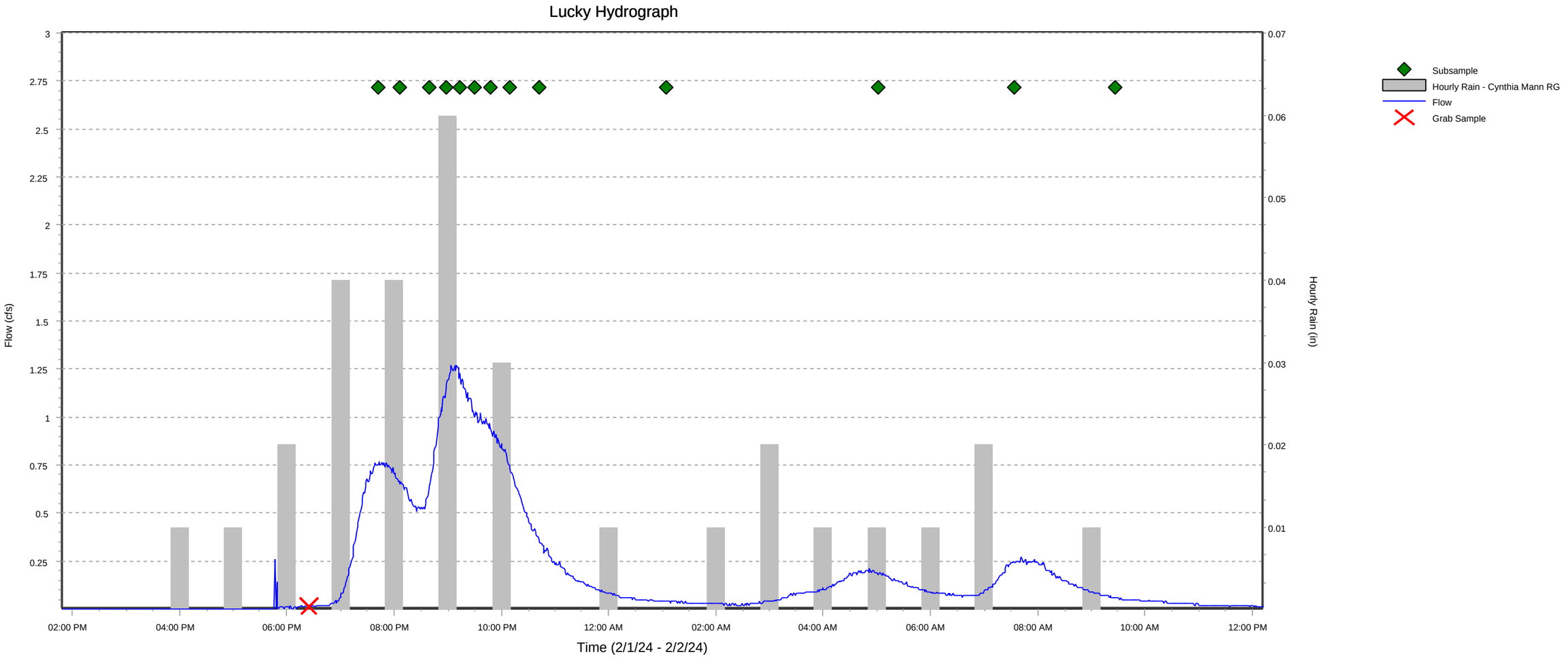
Notes:

Calculated RC = Average (precip (ft) / [volume (ft^3) x area (ft^2)])

Where precip (ft) is the measured amount from local rain guage, and volume (ft^3) is the measured discharge, and area (ft^2) is the watershed area

Expected volume (ft^3) = RC x expected precip (ft) x area (ft^2)

Attachment B: Storm Event Hydrographs


Lucky Hydrograph
Flow (cfs)
Hourly Rain (in)
3
2.75
2.5
2.25
2
1.75
1.5
1.25
1
0.75
0.5
0.25
0.07
0.06
0.05
0.04
0.03
0.02
0.01
02:00 PM
04:00 PM
06:00 PM
08:00 PM
10:00 PM
12:00 AM
02:00 AM
04:00 AM
06:00 AM
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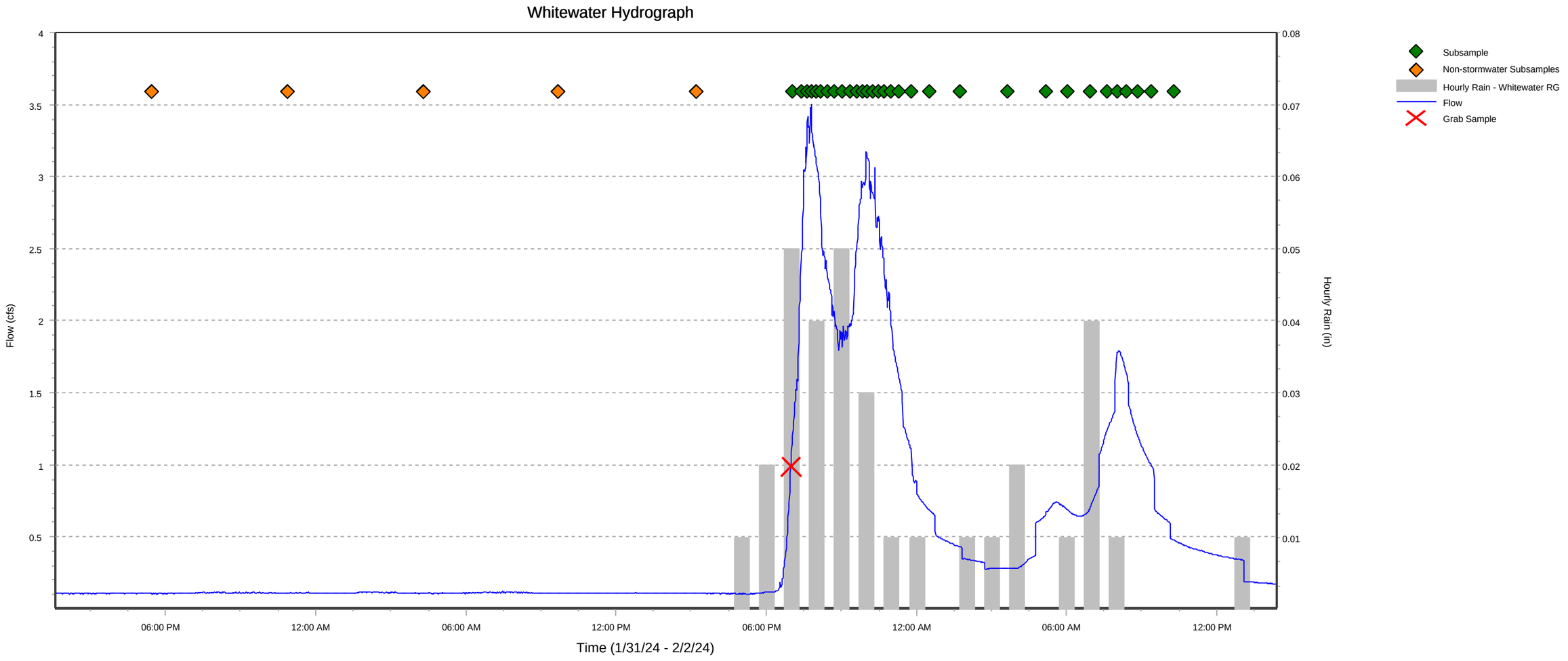
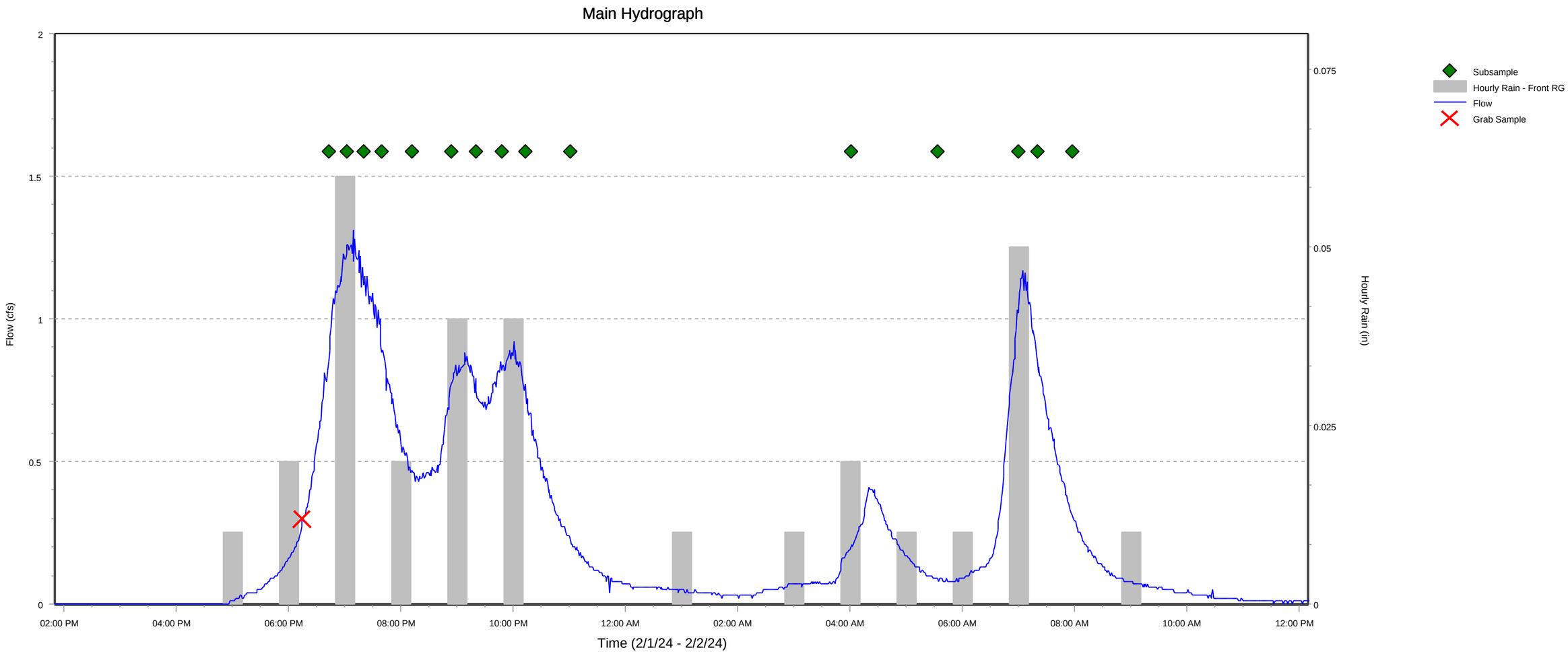
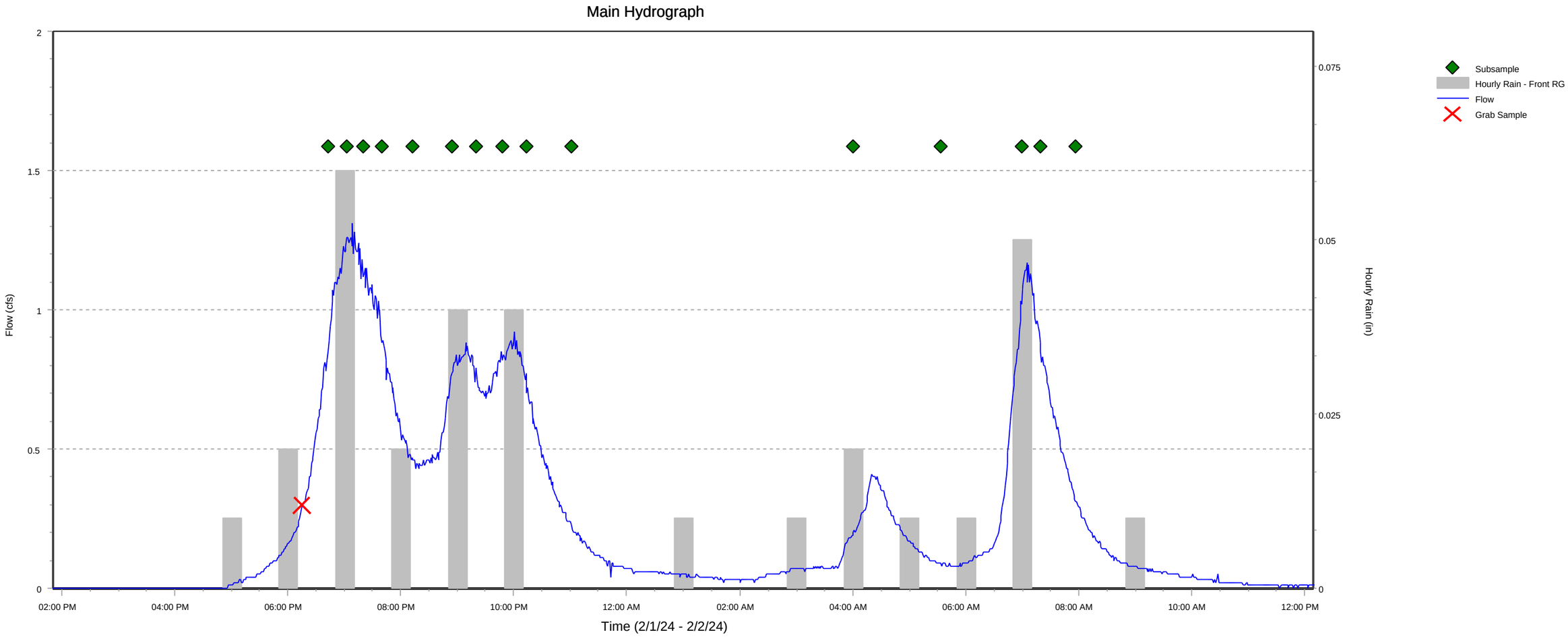
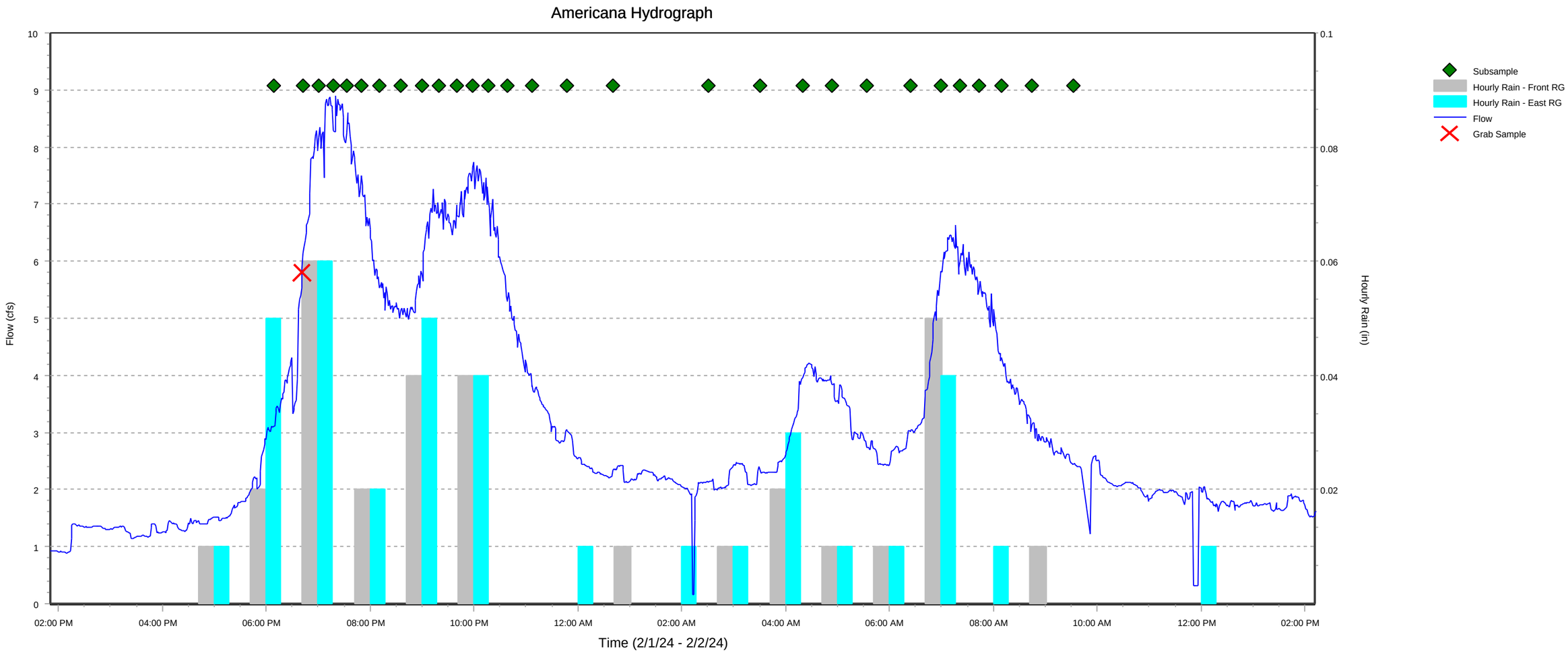
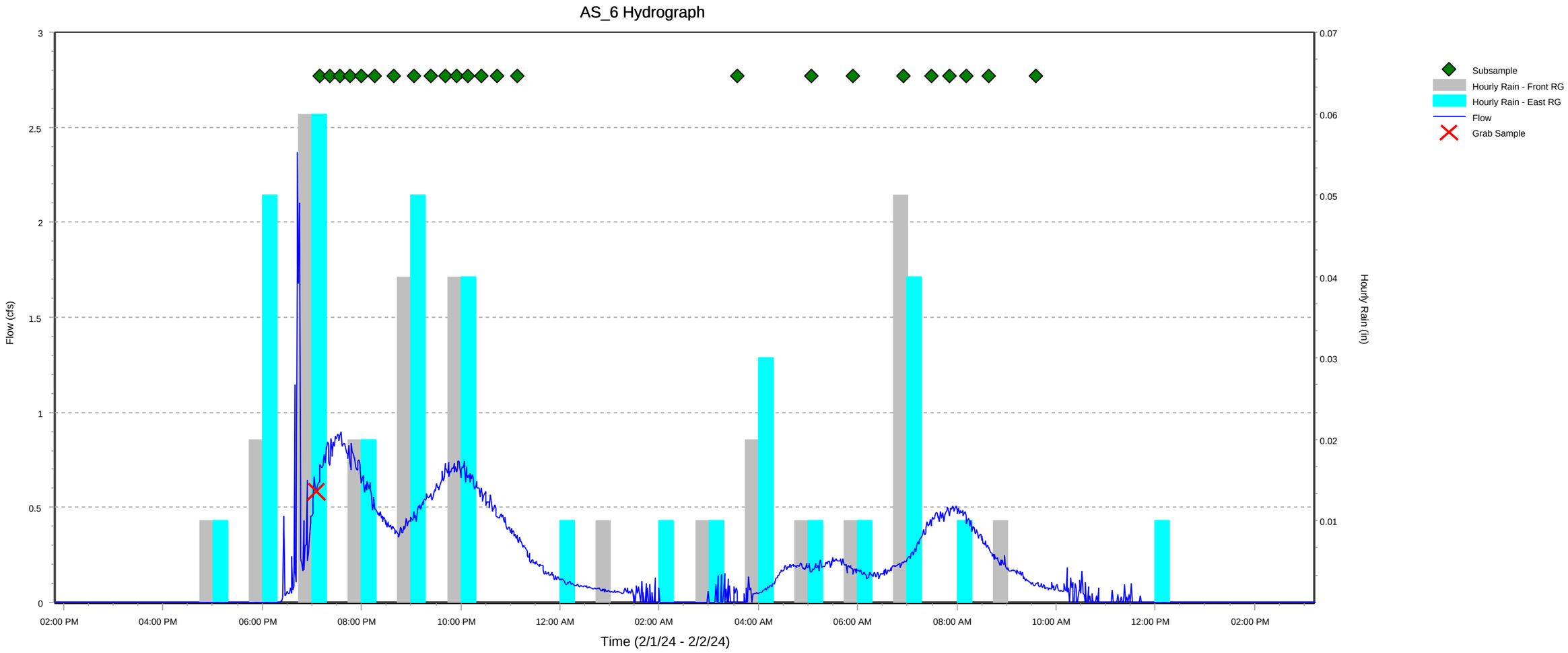
10:00 AM
12:00 PM
Time (2/1/24 - 2/2/24)
Subsample
Hourly Rain - Cynthia Mann RG
Flow
Grab Sample


Whitewater Hydrograph
Flow (cfs)
Hourly Rain (in)
4
3.5
3
2.5
2
1.5
1
0.5
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
06:00 PM
12:00 AM
06:00 AM
12:00 PM
06:00 PM
12:00 AM
06:00 AM
12:00 PM
Time (1/31/24 - 2/2/24)
Subsample
Non-stormwater Subsamples
Hourly Rain - Whitewater RG
Flow
Grab Sample


Main Hydrograph
Flow (cfs)
Hourly Rain (in)
2
1.5
1
0.5
0
0.075
0.05
0.025
0
02:00 PM
04:00 PM
06:00 PM
08:00 PM
10:00 PM
12:00 AM
02:00 AM
04:00 AM
06:00 AM
08:00 AM
10:00 AM
12:00 PM
Time (2/1/24 - 2/2/24)
Subsample
Hourly Rain - Front RG
Flow
Grab Sample


Main Hydrograph
Flow (cfs)
Hourly Rain (in)
2
1.5
1
0.5
0
0.075
0.05
0.025
0
02:00 PM
04:00 PM
06:00 PM
08:00 PM
10:00 PM
12:00 AM
02:00 AM
04:00 AM
06:00 AM
08:00 AM
10:00 AM
12:00 PM
Time (2/1/24 - 2/2/24)
Subsample
Hourly Rain - Front RG
Flow
Grab Sample


Americana Hydrograph
Flow (cfs)
Hourly Rain (in)
Time (2/1/24 - 2/2/24)
10
9
8
7
6
5
4
3
2
1
0
0.1
0.08
0.06
0.04
0.02
02:00 PM
04:00 PM
06:00 PM
08:00 PM
10:00 PM
12:00 AM
02:00 AM
04:00 AM
06:00 AM
08:00 AM
10:00 AM
12:00 PM
02:00 PM
Subsample
Hourly Rain - Front RG
Hourly Rain - East RG
Flow
Grab Sample


AS_6 Hydrograph
Flow (cfs)
Hourly Rain (in)
Time (2/1/24 - 2/2/24)
3
2.5
2
1.5
1
0.5
0
0.07
0.06
0.05
0.04
0.03
0.02
0.01
02:00 PM
04:00 PM
06:00 PM
08:00 PM
10:00 PM
12:00 AM
02:00 AM
04:00 AM
06:00 AM
08:00 AM
10:00 AM
12:00 PM
02:00 PM
Subsample
Hourly Rain - Front RG
Hourly Rain - East RG
Flow
Grab Sample

Attachment C: Field Forms

Grab Sample Data Form

STATION: Lucky 1800

Personnel: Tim / Chad **Date/Time On-Site:** ~~1807~~ 2/1/24

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
1807	1.96"	2.55	.06	12.8	2/1/24 1800	

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	240201-03 ~~WG~~ -WG	2/1/24 ~~1830~~	~~1825~~ 1825	☑
Field Duplicate *E.Coli*	240201-03- -101	2/1/24	1830	☑
Field Blank *E.Coli*	240201-03 -001	2/1/24	1830	☑

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
~~1019508~~ MP11	1819	14.62	4.92	7.15	593.29

Sampler Current Status	
First Subsample Date/Time	
Last Subsample Date/Time	
# of Subsamples taken	0/0

Comments:

Revised 210924 TL

Grab Sample Data Form

STATION: White Water

Personnel: Chad Tim **Date/Time On-Site:** 2/1/24 1846

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
1846	2.79	.37	0.67	—	-	-

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	240201 11 -WG	2124	1859	☑
Field Duplicate *E.Coli*	-101			☐
Field Blank *E.Coli*	-001			☐

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
~~1019500~~ MP11	1855	11.10	8.42	7.60	287.03

Sampler Current Status	
First Subsample Date/Time	~~2/1 18~~ 2/1 13 37
Last Subsample Date/Time	2/1 15 04
# of Subsamples taken	6

Comments:

Grab Sample Data Form

STATION: Main

Personnel: MB, KC **Date/Time On-Site:** 1804 2/1/24

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
1804	3.17"	79.57	0.64	12.7		

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	240201-12 -WG	2/1/24	1815	☒
Field Duplicate *E.Coli*	240201-12 -101	2/1/24	1818	☒
Field Blank *E.Coli*	240201-12 -001	~~2/1/24~~ 2/1/24 KC	1512	☒

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP07	1819	6.3	10.11	8.03	353.6

Sampler Current Status	
First Subsample Date/Time	NA
Last Subsample Date/Time	
# of Subsamples taken	NA

Comments:

main - alternate QC site. Lucky grab QC ~~successful~~ successful, so main QC discarded and not submitted to lab. MH

Revised 210924 TL

Grab Sample Data Form

STATION: Americana 02/01/2024

Personnel: MB, KC **Date/Time On-Site:** 1835 ~~02/01/24~~ MB

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
1835	8.54	3.29	2.172	12.1		

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	240201-14 -WG	2/1/24	1341	☒
Field Duplicate *E.Coli*	-101			☐
Field Blank *E.Coli*	-001			☐

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP07	1845	8.34	10.05	7.73	552.2

Sampler Current Status	
First Subsample Date/Time	1811 02/01/24
Last Subsample Date/Time	
# of Subsamples taken	1

Comments:

Offsite @ 1850

Grab Sample Data Form

STATION: AS-6

Personnel: MB-KC **Date/Time On-Site:** 02/01/2024 1855

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
1911	4.67	0.71	1.76	12.5		

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	240201-206 -WG	02/01/2024	1906	☒
Field Duplicate *E.Coli*	-101			☐
Field Blank *E.Coli*	-001			☐

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP07	1910	5.55	9.33	8.03	540.9

Sampler Current Status	
First Subsample Date/Time	1846 02/01/24
Last Subsample Date/Time	1909 02/01/24
# of Subsamples taken	2 (1 missed)

Comments:

missed sample:
First sub sample had rinse error
cleaned leaves off rinse tubing

offsite @ 1913

Revised 210924 TL

Set Up/ Shut Down Form – HACH (Lucky, Main, AS_6)

STATION: Lucky

SET UP

Personnel: MB, SJ, TA, ST, KC

Date/Time On-Site: Jan 31, 24 11:02

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
~~11:0~~ (MB)	~~1.68~~ (MB)		~~0.00~~ (MB)	~~13.0~~ (MB)
~~1131~~ (MB)	~~1.68~~ (TA)			
1131	1.68	0 gal/min	0.00	13.0
Enable Condition or Velocity Cutoff:			~~2.68"~~	2.68" (MB)
Deadband:			1"	
Trigger Volume:			7899 gal	

- [x] Install batteries on flowmeter and sampler
- [x] Perform decon. cycle
- [x] Install 15L sample bottle, with ice
- [x] Leave bottle lid at site, in a clean re-sealable plastic bag
- [x] Verify all cable and tubing connections
- [x] Check date and time on flowmeter and sampler
- [x] Set flowmeter program and sampler program parameters
- [x] Set logging interval to 1 minute
- [x] Start flowmeter program and sampler program
- [x] Verify running

Comments:

liquid detection sensor knob keeps falling off

SHUT DOWN

Personnel: ST

Date/Time On-Site: 2/5/24 12:28

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
1230	1.74 ~~0.00~~ ST	0.00	0.00		12.3
Downloaded to:		Stevens USB			

If flow monitoring is complete:	If continuing to monitor flow:
[x] Halt program on flowmeter	☐ Replace flowmeter battery
[x] Download flowmeter data	☐ Reset logging interval to 15 minutes
[x] Remove flowmeter battery	☐ Change velocity cutoff to 0.02 fps
	☐ Start program
	☐ Verify running

Comments:

Composite Sample Collection

STATION: Lucky
Personnel: KC, SP

Bottle 1 **of** 1
Date/Time On-Site: 2/1/24 2032

☑ Halt sampler program	
☑ Put lid on sample bottle; label sample bottle	
Sample ID:	240201-03, -WC
Approx Sample Volume (mL):	7250 mL
Clarity (ex. Clear, Cloudy, Silty):	Clear
Color (ex. Clear, Gray, Tan, Brown, Black):	Tan
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	2/1/24 1942	Success	13	0926	1
2	2/1/24 2007		14		
3	2039		15		
4	2059		16		
5	2114		17		
6	2130		18		
7	2148		19		
8	2209		20		
9	2242		21		
10	2/2/24 0104		22		
11	0502		23		
12	0734		24		

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☒ Power off sampler, if separate from flowmeter ☒ Keep flowmeter running ☒ Add ice to sample transport cooler	☐ Keep flowmeter running ☐ Install new 15L bottle, add ice ☐ Restart program from beginning **Date/Time Restarted:** _____ ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Set Up/ Shut Down Form – ISCO (Whitewater, Americana, State)

TATION: White water

SET UP

Personnel: ST, MB, TA, ST, KC

Date/Time On-Site: 1/31/24 11:53

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
11:53	1.52	0.11	0.04	—

Enable Condition:	2.55
Hysteresis:	1
Flow Pulse Interval:	2

On-Site

- ☒ Replace flowmeter battery, install sampler battery
- ☒ Perform decon. cycle
- ☒ Install 15L sample bottle, with ice
- ☒ Leave bottle lid at site, in a clean re-sealable plastic bag
- ☒ Set sampler program parameters
- ☒ Check date/time on sampler
- ☒ Verify all cable and tubing connections
- ☒ Verify sampler program is running

Flowlink (Refer to PG 411 or PG 412, if needed)

- ☒ (Direct) or Remote; Date/time ~~11:55~~ 1/31/24 11:57
- ☒ Retrieve data and review recent flow history
- ☒ Change Wireless Power Control to Storm Event
- ☒ Change Data Storage Rates to 1 minute for Level, Velocity, Total Flow, and Flow Rate
- ☒ Enable Sampler: On Trigger, and set Sampler Enable equation
- ☒ Set Sampler Pacing to Flow Paced, and set trigger volume

Comments: Time off site 12:22

SHUT DOWN

Personnel: ST

Date/Time On-Site: 2/5/24 1313

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1313	1.84	0.03	0.14	—
	Downloaded to:	Stevens USB		

On-Site

- ☐ Replace flowmeter battery
- ☐ Remove battery from sampler

Flowlink (Refer to Flowlink Instructions, if needed)

- ☒ (Direct) or Remote; Date/time 2/5 1314
- ☒ Retrieve data
- ☒ Change Wireless Power Control to Dry Weather
- ☒ Change Data Storage Rates to 15 minutes for Level, Velocity, Total Flow, and Flow Rate
- ☒ Enable Sampler: Never

Comments:

Composite Sample Collection

STATION: Whitewater **Bottle** 1 **of** 2

Personnel: KC, SA **Date/Time On-Site:** _____

☒ Halt sampler program	
☑ Put lid on sample bottle; label sample bottle	
Sample ID:	240201-11-~~KC~~ -WC
Approx Sample Volume (mL):	12500
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown
QA/QC Sample ID:	240201-11 -103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	1/1/24 1337	Success	13	1654	
2	1 1904		14	1713	
3	1/2/24 0028		15	1731	
4	552		16	1749	
5	1122		17	1802	
6	1513		18	1814	
7	1536		19	1826	
8	1548		20	1839	
9	1559		21	1853	
10	1610		22	1909	
11	1622		23	1930	
12	1637		24	1958	

Comments: Samples taken successfully. Timing does not make sense. Collected subsample times from flowmeter to submit to lab.
Actual begin time: 2/1/24 4:16 — 2/1/24 23:46

Post storm determined FM+SA not sync'd for time during setup. MK

If sampling is complete:
- ☐ Power off sampler, if separate from flowmeter
- ☐ Keep flowmeter running
- ☐ Add ice to sample transport cooler

If continuing sampling (sample bottle change-out):
- ☒ Keep flowmeter running
- ☒ Install new 15L bottle; add ice
- ☑ Restart program from beginning

Date/Time Restarted: 2/2/24 00:04

- ☒ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: Whitewater **Bottle** 2 **of** 2

Personnel: KC, ST **Date/Time On-Site:** 2/2/24 1040

☐ Halt Sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	24N01-11- -WC
Approx Sample Volume (mL):	6500
Clarity (ex. Clear, Cloudy, Silty):	~~Tan~~ very cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Tan
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	2/2/24 0032	Success	13		
2	0143		14		
3	0338		15		
4	0511		16		
5	0682		17		
6	0657		18		
7	0736		19		
8	0802		20		
9	0823		21		
10	0849		22		
11	0922		23		
12	1016		24		

Comments: Date/time on sampler is incorrect. Real subsample times are on the flowmeter.

Desiccant changed on flowmeter 2/2/24 1049

Post-storm determined FM+SA not synced for time during setup. ash

If sampling is complete:
- ☒ Power off sampler
- ☐ Verify flowmeter is running
- ☒ Add ice to sample transport cooler
- ☒ Complete COC form; arrange transport to lab

If continuing sampling (sample bottle change-out):
- ☐ Keep flowmeter running
- ☐ Install new 15L bottle; add ice
- ☐ Restart program from beginning

Date/Time Restarted: _____

- ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Set Up/ Shut Down Form – HACH (Lucky, Main, AS_6)

STATION: Main

SET UP

Personnel: SJ, TA, MB, SI, KC

Date/Time On-Site: 1/31/24 13:18

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
~~13:41~~	~~1.05~~	~~0.46 gpm~~	~~0.27~~	~~12.9~~ SJ
13:45	1.06	0.00 gpm	0.00	12.9

Enable Condition or Velocity Cutoff:	~~0.02~~ SJ 2.06
Deadband:	1
Trigger Volume:	9313

- [x] Install batteries on flowmeter and sampler
- [x] Perform decon. cycle
- [x] Install 15L sample bottle, with ice
- [x] Leave bottle lid at site, in a clean re-sealable plastic bag
- [x] Verify all cable and tubing connections
- [x] Check date and time on flowmeter and sampler
- [x] Set flowmeter program and sampler program parameters
- [x] Set logging interval to 1 minute
- [x] Start flowmeter program and sampler program
- [x] Verify running

Comments:

SHUT DOWN

Personnel: ST

Date/Time On-Site: 2/5/24 1328

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
1328	0.88	0.00 gpm	0.000		12.4
Downloaded to:		Stevens USB			

If flow monitoring is complete:	**If continuing to monitor flow:**
[x] Halt program on flowmeter	☐ Replace flowmeter battery
[x] Download flowmeter data	☐ Reset logging interval to 15 minutes
[x] Remove flowmeter battery	☐ Change velocity cutoff to 0.02 fps
	☐ Start program
	☐ Verify running

Comments:

Revised 231009 ML

Composite Sample Collection

STATION: Main **Bottle** 1 **of** 1

Personnel: ST KC **Date/Time On-Site:** 2/1/24 2110

☐ Halt sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	ST 231240201-12 -WC
Approx Sample Volume (mL):	10250 mL
Clarity (ex. Clear, Cloudy, Silty):	Silty, Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	2/1/24 1843	Success	13	0700	
2	1903		14	0720	
3	1920		15	0757	
4	1940		16		
5	2012		17		
6	2054		18		
7	2120		19		
8	2148		20		
9	2213		21		
10	2301		22		
11	2/2/24 0401		23		
12	1 0534		24		

Comments:

If sampling is complete:
- ☒ Power off sampler, if separate from flowmeter
- ☒ Keep flowmeter running
- ☒ Add ice to sample transport cooler

If continuing sampling (sample bottle change-out):
- ☐ Keep flowmeter running
- ☐ Install new 15L bottle, add ice
- ☐ Restart program from beginning

Date/Time Restarted: _____
- ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 m
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Set Up/ Shut Down Form – ISCO (Whitewater, Americana, State)

TATION: Americana

SET UP

Personnel: ST, ICC, TA, MB, SJ

Date/Time On-Site: 1/31/24 1404

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1406	5.13	1.36	1.881	12.5
Enable Condition:	6.46			
Hysteresis:	1			
Flow Pulse Interval:	8071 cf			

On-Site

- ☒ Replace flowmeter battery, install sampler battery
- ☒ Perform decon. cycle
- ☒ Install 15L sample bottle, with ice
- ☒ Leave bottle lid at site, in a clean re-sealable plastic bag
- ☒ Set sampler program parameters
- ☒ Check date/time on sampler
- ☒ Verify all cable and tubing connections
- ☒ Verify sampler program is running

Flowlink (Refer to PG 411 or PG 412, if needed)

- ☒ Direct or Remote; Date/time 1/31/24 1411
- ☒ Retrieve data and review recent flow history
- ☒ Change Wireless Power Control to Storm Event
- ☒ Change Data Storage Rates to 1 minute for Level, Velocity, Total Flow, and Flow Rate
- ☒ Enable Sampler: On Trigger, and set Sampler Enable equation
- ☒ Set Sampler Pacing to Flow Paced, and set trigger volume

Comments:

Offsite 14:40

SHUT DOWN

Personnel: ST

Date/Time On-Site: 2/5/24 13:55

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1355	5.58	1.54	1.885	11.82
Downloaded to:	Stevens USB			

On-Site

- ☒ Replace flowmeter battery
- ☐ Remove battery from sampler

Flowlink (Refer to Flowlink Instructions, if needed)

- ☒ Direct or Remote; Date/time 2/5 1357
- ☒ Retrieve data
- ☒ Change Wireless Power Control to Dry Weather
- ☒ Change Data Storage Rates to 15 minutes for Level, Velocity, Total Flow, and Flow Rate
- ☒ Enable Sampler: Never

Comments:

Composite Sample Collection

STATION: Americana
Personnel: ST, KC
Bottle 1 **of** 2
Date/Time On-Site: 2/1/24 2123

☐ Halt sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	240201-14 -WC
Approx Sample Volume (mL):	9500mL
Clarity (ex. Clear, Cloudy, Silty):	Cloudy Silty
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	2/1/24 1811	Success	13	2/1/24 2245 ~~2207~~	
2	~~1836~~ 1845		14	2242 ~~2220~~	
3	1904 ~~1915~~		15	2311 ~~2242~~	
4	1921 ~~1904~~		16	2351 ~~2311~~	
5	1937 ~~1921~~		17	2/2/24 0052 ~~2351~~	
6	1953 ~~1937~~		18	~~2/2/24 0045~~	
7	2013 ~~1953~~		19		
8	2038 ~~2013~~		20		
9	2103 ~~2039~~		21		
10	2123 ~~2105~~		22		
11	2144 ~~2123~~		23		
12	2022 ~~2144~~		24		

Comments: Accidentally turned off sampler + it restarted the program. Chose to put on new bottle since we had to start program from the beginning.

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☒ Keep flowmeter running
☐ Keep flowmeter running	☒ Install new 15L bottle; add ice
☐ Add ice to sample transport cooler	☒ Restart program from beginning
	Date/Time Restarted: 2/2/24 101
	☒ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: Americana **Bottle** 2 **of** 2

Personnel: ST, KC **Date/Time On-Site:** 2/2/24 0940

☒ Halt sampler program	
☒ Put lid on sample bottle; label sample bottle	
Sample ID:	240201-14-WC KC -WC
Approx Sample Volume (mL):	5000ml
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Tan
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	2/2/24 0233	Success	13		
2	0334		14		
3	0423		15		
4	0457		16		
5	0538		17		
6	0627		18		
7	0702		19		
8	0724		20		
9	0746		21		
10	0812		22		
11	0848		23		
12	0936		24		

Comments:

If sampling is complete:
- ☒ Power off sampler, if separate from flowmeter
- ☒ Keep flowmeter running
- ☒ Add ice to sample transport cooler

If continuing sampling (sample bottle change-out):
- ☐ Keep flowmeter running
- ☐ Install new 15L bottle; add ice
- ☐ Restart program from beginning

Date/Time Restarted: _____

- ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Revised 220727 TL

Set Up/ Shut Down Form – HACH (Lucky, Main, AS_6)

STATION: AS_6

SET UP

Personnel: SJ, TA, MB, ST, KC

Date/Time On-Site: 1/31/24 1454

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1503	0.0	0.0	0.0	12.4

Enable Condition or Velocity Cutoff:	0.02
Deadband:	1
Trigger Volume:	~~6.0 tc~~ 601 cf ST

- ☒ Install batteries on flowmeter and sampler
- ☒ Perform decon. cycle
- ☒ Install 15L sample bottle, with ice
- ☒ Leave bottle lid at site, in a clean re-sealable plastic bag
- ☒ Verify all cable and tubing connections
- ☒ Check date and time on flowmeter and sampler
- ☒ Set flowmeter program and sampler program parameters
- ☒ Set logging interval to 1 minute
- ☒ Start flowmeter program and sampler program
- ☒ Verify running

Comments: Time off site: 1512

SHUT DOWN

Personnel: ST

Date/Time On-Site: 2/6/24 0941

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
0943	0.000	0.00	0.00	88302	11.3
Downloaded to:		Rugged6			

If flow monitoring is complete:	If continuing to monitor flow:
☒ Halt program on flowmeter	☐ Replace flowmeter battery
☒ Download flowmeter data	☐ Reset logging interval to 15 minutes
☒ Remove flowmeter battery	☐ Change velocity cutoff to 0.02 fps
	☐ Start program
	☐ Verify running

Comments:

Composite Sample Collection

STATION: AS-6 **Bottle** 1 **of** 2

Personnel: KC, ST **Date/Time On-Site:** _____

☒ Halt sampler program	
☒ Put lid on sample bottle; label sample bottle	
Sample ID:	240201-206 -WC
Approx Sample Volume (mL):	19400
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	2/1/24 1846	Rinse error	13	2/1/24 2209	Success
2	1907	Success	14	2225	↓
3	1922	↓	15	2244	↓
4	1934	↓	16	2308	↓
5	1946	↓	17	2353	distributor error
6	2000	↓	18		
7	2016	↓	19		
8	2039	↓	20		
9	2104	↓	21		
10	2124	↓	22		
11	2141	↓	23		
12	2155	↓	24		

Comments: Bottle completely full to rim. New bottle installed & program restarted.

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☒ Keep flowmeter running
☐ Keep flowmeter running	☒ Install new 15L bottle, add ice
☐ Add ice to sample transport cooler	☒ Restart program from beginning
	Date/Time Restarted: 2/1/24 0035
	☒ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

15"

Composite Sample Collection

STATION: AS-6 **Bottle** 2 **of** 2

Personnel: KC, ST **Date/Time On-Site:** 2/2/24 1005

☑ Halt sampler program	
☑ Put lid on sample bottle; label sample bottle	
Sample ID:	240201-206 -WC
Approx Sample Volume (mL):	5000 mL
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Tan
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	2/2/24 0355	Success	13		
2	0504		14		
3	0554		15		
4	0656		16		
5	0729		17		
6	0751		18		
7	0812		19		
8	0839		20		
9	0936		21		
10			22		
11			23		
12			24		

Comments:

If sampling is complete:
- ☑ Power off sampler, if separate from flowmeter
- ☑ Keep flowmeter running
- ☑ Add ice to sample transport cooler

If continuing sampling (sample bottle change-out):
- ☐ Keep flowmeter running
- ☐ Install new 15L bottle; add ice
- ☐ Restart program from beginning

Date/Time Restarted: _____

- ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Revised 220727 TL

Attachment D: Storm Event Analytical Reports

Report Date: 02/12/2024 16:32

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00327-01	ACST1B	240201-03-WG	Water		02/01/2024	02/02/2024
AC00327-02	ACST1B	240201-03-101	Water		02/01/2024	02/02/2024
AC00327-03	ACST1B	240201-03-001	Water		02/01/2024	02/02/2024
AC00327-04	ACST1B	240201-11-WG	Water		02/01/2024	02/02/2024
AC00327-05	ACST1B	240201-12-WG	Water		02/01/2024	02/02/2024
AC00327-06	ACST1B	240201-14-WG	Water		02/01/2024	02/02/2024
AC00327-07	ACST1B	240201-206-WG	Water		02/01/2024	02/02/2024

Report Date: 02/12/2024 16:32

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240201-03-WG
Date/Time Collected:	02/01/2024 18:25		
Lab Number:	AC00327-01	Sample Collector:	T.A
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B240390	<1.0	MPN/100 mL	1.0	1.0	IDEXX - Colilert	02/02/24 06:23	2/3/24 8:23	MEC	H U
Wet Chemistry										
Chlorine Screen	B240392	Absent				SM 4500-CL G-2000 mod	02/02/24	2/2/24 7:05	LRF	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 02/12/2024 16:32

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240201-03-101
Date/Time Collected:	02/01/2024 12:00		
Lab Number:	AC00327-02	Sample Collector:	T.A
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B240390	2.0	MPN/100 mL	1.0	1.0	IDEXX - Colilert	02/02/24 07:23	2/3/24 8:23	MEC	H
Wet Chemistry										
Chlorine Screen	B240392	Absent				SM 4500-CL G-2000 mod	02/02/24	2/2/24 7:18	LRF	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 02/12/2024 16:32

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240201-03-001
Date/Time Collected:	02/01/2024 12:00		
Lab Number:	AC00327-03	Sample Collector:	T.A
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B240390	<1.0	MPN/100 mL	1.0	1.0	IDEXX - Colilert	02/02/24 07:23	2/3/24 8:23	MEC	H U
Wet Chemistry										
Chlorine Screen	B240392	Absent				SM 4500-CL G-2000 mod	02/02/24	2/2/24 7:18	LRF	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 02/12/2024 16:32

Boise City Public Works
Water Quality Laboratory
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Boise, Idaho 83714-1076
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Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240201-11-WG
Date/Time Collected:	02/01/2024 18:59		
Lab Number:	AC00327-04	Sample Collector:	C.S
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B240390	68.9	MPN/100 mL	1.0	1.0	IDEXX - Colilert	02/02/24 06:34	2/3/24 8:23	MEC	H
Wet Chemistry										
Chlorine Screen	B240392	Absent				SM 4500-CL G-2000 mod	02/02/24	2/2/24 7:09	LRF	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 02/12/2024 16:32

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240201-12-WG
Date/Time Collected:	02/01/2024 18:15		
Lab Number:	AC00327-05	Sample Collector:	K.C
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B240390	238.2	MPN/100 mL	1.0	1.0	IDEXX - Colilert	02/02/24 06:10	2/3/24 8:23	MEC	H
Wet Chemistry										
Chlorine Screen	B240392	Absent				SM 4500-CL G-2000 mod	02/02/24	2/2/24 7:05	LRF	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 02/12/2024 16:32

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
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Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240201-14-WG
Date/Time Collected:	02/01/2024 18:41		
Lab Number:	AC00327-06	Sample Collector:	M.B
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B240390	65.0	MPN/100 mL	1.0	1.0	IDEXX - Colilert	02/02/24 06:28	2/3/24 8:23	MEC	H
Wet Chemistry										
Chlorine Screen	B240392	Absent				SM 4500-CL G-2000 mod	02/02/24	2/2/24 7:05	LRF	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 02/12/2024 16:32

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240201-206-WG
Date/Time Collected:	02/01/2024 19:06		
Lab Number:	AC00327-07	Sample Collector:	K.C
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B240390	290.9	MPN/100 mL	1.0	1.0	IDEXX - Colilert	02/02/24 06:58	2/3/24 8:23	MEC	H
Wet Chemistry										
Chlorine Screen	B240392	Absent				SM 4500-CL G-2000 mod	02/02/24	2/2/24 7:09	LRF	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 02/12/2024 16:32

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Microbiology									
Batch: B240390									
Blank (B240390-BLK1)									
E. Coli	Absent						02/03/2024	MEC	
LCS (B240390-BS1)									
E. Coli				Present			02/03/2024	MEC	
Duplicate (B240390-DUP1)	Source ID: AC00327-07								
E. Coli					Pass	128	02/03/2024	MEC	

Report Date: 02/12/2024 16:32

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Notes and Definitions

Item	Definition
H	Hold time Exceeded.
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

for JFK

Janet Finegan-Kelly
Water Quality Laboratory Manager

Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Ada County Highway District

Attn: Steven Turner
3775 Adams Street
Garden City, Idaho 83714–6418
Tel. (208) 387–6269
Fax (208) 387–6391

Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Kristin Chisholm, Chad Schwend, Tim Anderson, Michael Buls

Lab# AC00327	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	E. Coli - IDEXX Colilert	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
-01	2/1/24		1825		240201-03-WG	TA	X	X												X					1
-02	2/1/24		1200		240201-03-101	TA	X	X												X					1
-03	2/1/24		1200		240201-03-001	TA	X	X												X					1
-04	2/1/24		1859		240201-11-~~Gw~~ WG	CS	X	X												X					1
-05	2/1/24		1815		240201-12-WG	KC	X	X												X					1
-06	2/1/24		1841		240201-14-WG	MB	X	X												X					1
-07	2/1/24		1906		240201-206-WG	KC	X	X												X					1

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
Kristin Chisholm	2/1/2024 1957	[signature] 2/1/24 1957	
Chad Schwend	2/2/2024 0832	[signature] 2-2-24 0801	

AC00327

Report Date: 03/19/2024 10:19

Revised Report

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00329-01	ACST1C	240201-12-WC	Water		02/02/2024	02/02/2024
AC00329-02	ACST1C	240201-14-WC	Water		02/02/2024	02/02/2024
AC00329-03	ACST1C	240201-206-WC	Water		02/02/2024	02/02/2024
AC00329-04	ACST1C	240201-03-WC	Water		02/02/2024	02/02/2024
AC00329-05	ACST1C	240201-11-WC	Water		02/02/2024	02/02/2024
AC00329-06	ACST1C	240201-11-103	Water		02/02/2024	02/02/2024

Report Date: 03/19/2024 10:19

Revised Report

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
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Analysis Report

Location:	ACST1C	Location Description:	240201-12-WC
Date/Time Collected:	02/01/2024 18:43 - 02/02/2024 07:57		
Lab Number:	AC00329-01	Sample Collector:	S.T
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B240477	351		35.0	35.0	SM 4500-NH3 D-2011	02/09/24	2/9/24 9:02	ALN	
BOD5	B240404	5.74	mg/L	2.00	2.00	SM 5210 B-2016	02/03/24	2/8/24 9:58	ASE	
Chloride	B240518	12.7	mg/L	0.0800	0.0800	EPA 300.0, Rev. 2.1 (1993)	02/12/24	2/12/24 17:58	BAK	
COD	B240401	77.0	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	02/03/24	2/3/24 10:18	RKT	
Nitrate-Nitrite, as N	B240479	0.209	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	02/09/24	2/9/24 11:13	RKT	
TKN	B240548	1.12	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	02/15/24	2/16/24 9:56	JAL	
Total Dissolved Solids	B240407	64.2	mg/L	20.0	20.0	SM 2540 C-2015	02/02/24	2/6/24 11:51	ASE	
Total Suspended Solids	B240408	59.8	mg/L	0.900	0.900	SM 2540 D-2015	02/04/24	2/4/24 12:48	CLH	
Turbidity	B240400	103	NTU	1.2	0.3	EPA 180.1, Rev. 2.0 (1993)	02/02/24	2/2/24 13:26	LRF	D
Dissolved Wet Chemistry										
Orthophosphate, as P	B240398	0.0557	mg/L	3.00E-3	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	02/02/24	2/2/24 14:25	RKT	
Total Metals										
Mercury	B240440	0.0112	ug/L	0.0100	0.0100	EPA 245.1	02/07/24	2/8/24 8:20	SAS	
Arsenic	B240405	1.4	ug/L	0.070	0.070	EPA 200.8	02/04/24	2/8/24 13:37	DMW	
Cadmium	B240405	0.066	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/8/24 13:37	DMW	
Calcium	B240429	4.17	mg/L	0.0400	0.0400	EPA 200.7	02/06/24	2/8/24 11:51	AMO	
Lead	B240405	4.1	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/8/24 13:37	DMW	
Magnesium	B240429	1930	ug/L	80.0	80.0	EPA 200.7	02/06/24	2/8/24 11:51	AMO	
Phosphorus as P	B240429	0.143	mg/L	0.0120	0.0120	EPA 200.7	02/06/24	2/8/24 11:51	AMO	
Hardness	B240429	18.3	mg/L	0.100	0.100	SM 2340 B-2011	02/06/24	2/8/24 11:51	AMO	
Dissolved Metals										
Cadmium	B240406	0.012	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/4/24 14:36	DMW	
Copper	B240406	3.6	ug/L	0.15	0.15	EPA 200.8	02/04/24	2/4/24 14:36	DMW	
Lead	B240406	0.084	ug/L	9.00E-3	9.00E-3	EPA 200.8	02/04/24	2/4/24 14:36	DMW	
Zinc	B240406	18.4	ug/L	0.50	0.50	EPA 200.8	02/04/24	2/4/24 14:36	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 03/19/2024 10:19

Revised Report

Boise City Public Works
Water Quality Laboratory
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Analysis Report

Location:	ACST1C	Location Description:	240201-14-WC
Date/Time Collected:	02/01/2024 18:11 - 02/02/2024 09:36		
Lab Number:	AC00329-02	Sample Collector:	S.T
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B240477	193		35.0	35.0	SM 4500-NH3 D-2011	02/09/24	2/9/24 9:10	ALN	
BOD5	B240404	6.98	mg/L	2.00	2.00	SM 5210 B-2016	02/03/24	2/8/24 9:52	ASE	
Chloride	B240518	64.1	mg/L	0.0800	0.0800	EPA 300.0, Rev. 2.1 (1993)	02/12/24	2/12/24 18:24	BAK	
COD	B240401	55.0	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	02/03/24	2/3/24 10:18	RKT	
Nitrate-Nitrite, as N	B240479	0.905	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	02/09/24	2/9/24 11:14	RKT	
TKN	B240548	1.05	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	02/15/24	2/16/24 10:01	JAL	
Total Dissolved Solids	B240407	224	mg/L	20.0	20.0	SM 2540 C-2015	02/02/24	2/6/24 11:52	ASE	
Total Suspended Solids	B240408	50.7	mg/L	0.900	0.900	SM 2540 D-2015	02/04/24	2/4/24 12:04	CLH	
Turbidity	B240400	89.6	NTU	1.2	0.3	EPA 180.1, Rev. 2.0 (1993)	02/02/24	2/2/24 13:47	LRF	D
Dissolved Wet Chemistry										
Orthophosphate, as P	B240398	0.116	mg/L	3.00E-3	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	02/02/24	2/2/24 14:26	RKT	
Total Metals										
Mercury	B240440	<0.0100	ug/L	0.0100	0.0100	EPA 245.1	02/07/24	2/8/24 8:23	SAS	U
Arsenic	B240405	3.4	ug/L	0.070	0.070	EPA 200.8	02/04/24	2/8/24 13:47	DMW	
Cadmium	B240405	0.063	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/8/24 13:47	DMW	
Calcium	B240429	27.3	mg/L	0.0400	0.0400	EPA 200.7	02/06/24	2/8/24 11:54	AMO	
Lead	B240405	4.2	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/8/24 13:47	DMW	
Magnesium	B240429	6070	ug/L	80.0	80.0	EPA 200.7	02/06/24	2/8/24 11:54	AMO	
Phosphorus as P	B240429	0.213	mg/L	0.0120	0.0120	EPA 200.7	02/06/24	2/8/24 11:54	AMO	
Hardness	B240429	93.3	mg/L	0.100	0.100	SM 2340 B-2011	02/06/24	2/8/24 11:54	AMO	
Dissolved Metals										
Cadmium	B240406	0.016	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/4/24 14:39	DMW	
Copper	B240406	3.4	ug/L	0.15	0.15	EPA 200.8	02/04/24	2/4/24 14:39	DMW	
Lead	B240406	0.090	ug/L	9.00E-3	9.00E-3	EPA 200.8	02/04/24	2/4/24 14:39	DMW	
Zinc	B240406	17.3	ug/L	0.50	0.50	EPA 200.8	02/04/24	2/4/24 14:39	DMW	

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Report Date: 03/19/2024 10:19

Revised Report

Boise City Public Works
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Analysis Report

Location:	ACST1C	Location Description:	240201-206-WC
Date/Time Collected:	02/01/2024 19:09 - 02/02/2024 09:36		
Lab Number:	AC00329-03	Sample Collector:	S.T
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B240477	159		35.0	35.0	SM 4500-NH3 D-2011	02/09/24	2/9/24 9:08	ALN	
BOD5	B240404	11.6	mg/L	2.00	2.00	SM 5210 B-2016	02/03/24	2/8/24 9:47	ASE	
Chloride	B240518	14.5	mg/L	0.0800	0.0800	EPA 300.0, Rev. 2.1 (1993)	02/12/24	2/12/24 19:17	BAK	
COD	B240401	108	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	02/03/24	2/3/24 10:18	RKT	
Nitrate-Nitrite, as N	B240479	0.191	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	02/09/24	2/9/24 11:15	RKT	
TKN	B240548	1.83	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	02/15/24	2/16/24 10:02	JAL	
Total Dissolved Solids	B240407	116	mg/L	20.0	20.0	SM 2540 C-2015	02/02/24	2/6/24 11:53	ASE	
Total Suspended Solids	B240408	70.3	mg/L	0.900	0.900	SM 2540 D-2015	02/04/24	2/4/24 12:49	CLH	
Turbidity	B240400	143	NTU	1.2	0.3	EPA 180.1, Rev. 2.0 (1993)	02/02/24	2/2/24 14:01	LRF	D
Dissolved Wet Chemistry										
Orthophosphate, as P	B240398	0.285	mg/L	3.00E-3	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	02/02/24	2/2/24 14:27	RKT	
Total Metals										
Mercury	B240440	0.0168	ug/L	0.0100	0.0100	EPA 245.1	02/07/24	2/8/24 8:27	SAS	
Arsenic	B240405	3.0	ug/L	0.070	0.070	EPA 200.8	02/04/24	2/8/24 13:50	DMW	
Cadmium	B240405	0.077	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/8/24 13:50	DMW	
Calcium	B240429	3.33	mg/L	0.0400	0.0400	EPA 200.7	02/06/24	2/8/24 11:57	AMO	
Lead	B240405	6.7	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/8/24 13:50	DMW	
Magnesium	B240429	2060	ug/L	80.0	80.0	EPA 200.7	02/06/24	2/8/24 11:57	AMO	
Phosphorus as P	B240429	0.464	mg/L	0.0120	0.0120	EPA 200.7	02/06/24	2/8/24 11:57	AMO	
Hardness	B240429	16.8	mg/L	0.100	0.100	SM 2340 B-2011	02/06/24	2/8/24 11:57	AMO	
Dissolved Metals										
Cadmium	B240406	0.013	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/4/24 14:48	DMW	
Copper	B240406	4.5	ug/L	0.15	0.15	EPA 200.8	02/04/24	2/4/24 14:48	DMW	
Lead	B240406	0.29	ug/L	9.00E-3	9.00E-3	EPA 200.8	02/04/24	2/4/24 14:48	DMW	
Zinc	B240406	10.5	ug/L	0.50	0.50	EPA 200.8	02/04/24	2/4/24 14:48	DMW	

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Report Date: 03/19/2024 10:19

Revised Report

Boise City Public Works
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Analysis Report

Location:	ACST1C	Location Description:	240201-03-WC
Date/Time Collected:	02/01/2024 19:42 - 02/02/2024 09:26		
Lab Number:	AC00329-04	Sample Collector:	S.T
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B240477	173		35.0	35.0	SM 4500-NH3 D-2011	02/09/24	2/9/24 9:05	ALN	
BOD5	B240404	7.27	mg/L	2.00	2.00	SM 5210 B-2016	02/03/24	2/8/24 9:43	ASE	
Chloride	B240518	6.25	mg/L	0.0800	0.0800	EPA 300.0, Rev. 2.1 (1993)	02/12/24	2/12/24 19:43	BAK	
COD	B240401	39.0	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	02/03/24	2/3/24 10:18	RKT	
Nitrate-Nitrite, as N	B240479	0.204	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	02/09/24	2/9/24 11:16	RKT	
TKN	B240548	0.894	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	02/15/24	2/16/24 10:03	JAL	
Total Dissolved Solids	B240407	52.8	mg/L	20.0	20.0	SM 2540 C-2015	02/04/24	2/6/24 11:55	ASE	
Total Suspended Solids	B240408	18.8	mg/L	0.900	0.900	SM 2540 D-2015	02/04/24	2/4/24 13:41	CLH	
Turbidity	B240400	60.5	NTU	1.2	0.3	EPA 180.1, Rev. 2.0 (1993)	02/02/24	2/2/24 13:33	LRF	D
Dissolved Wet Chemistry										
Orthophosphate, as P	B240398	0.100	mg/L	3.00E-3	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	02/02/24	2/2/24 14:28	RKT	
Total Metals										
Mercury	B240440	<0.0100	ug/L	0.0100	0.0100	EPA 245.1	02/07/24	2/8/24 7:41	SAS	U
Arsenic	B240405	0.85	ug/L	0.070	0.070	EPA 200.8	02/04/24	2/8/24 13:52	DMW	
Cadmium	B240405	0.024	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/8/24 13:52	DMW	
Calcium	B240429	4.01	mg/L	0.0400	0.0400	EPA 200.7	02/06/24	2/8/24 12:00	AMO	
Lead	B240405	0.82	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/8/24 13:52	DMW	
Magnesium	B240429	1460	ug/L	80.0	80.0	EPA 200.7	02/06/24	2/8/24 12:00	AMO	
Phosphorus as P	B240429	0.174	mg/L	0.0120	0.0120	EPA 200.7	02/06/24	2/8/24 12:00	AMO	
Hardness	B240429	16.0	mg/L	0.100	0.100	SM 2340 B-2011	02/06/24	2/8/24 12:00	AMO	
Dissolved Metals										
Cadmium	B240406	<0.0100	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/4/24 14:51	DMW	U
Copper	B240406	2.0	ug/L	0.15	0.15	EPA 200.8	02/04/24	2/4/24 14:51	DMW	
Lead	B240406	0.056	ug/L	9.00E-3	9.00E-3	EPA 200.8	02/04/24	2/4/24 14:51	DMW	
Zinc	B240406	17.5	ug/L	0.50	0.50	EPA 200.8	02/04/24	2/4/24 14:51	DMW	

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Report Date: 03/19/2024 10:19

Revised Report

Boise City Public Works
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Analysis Report

Location:	ACST1C	Location Description:	240201-11-WC
Date/Time Collected:	02/01/2024 04:16 - 02/02/2024 10:16		
Lab Number:	AC00329-05	Sample Collector:	S.T
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B240477	169		35.0	35.0	SM 4500-NH3 D-2011	02/09/24	2/9/24 9:39	ALN	
BOD5	B240404	9.34	mg/L	2.00	2.00	SM 5210 B-2016	02/03/24	2/8/24 9:37	ASE	
Chloride	B240518	35.6	mg/L	0.0800	0.0800	EPA 300.0, Rev. 2.1 (1993)	02/12/24	2/12/24 20:10	BAK	
COD	B240401	82.0	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	02/03/24	2/3/24 10:18	RKT	
Nitrate-Nitrite, as N	B240479	0.375	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	02/09/24	2/9/24 11:17	RKT	
TKN	B240548	1.33	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	02/15/24	2/16/24 10:04	JAL	
Total Dissolved Solids	B240407	139	mg/L	20.0	20.0	SM 2540 C-2015	02/02/24	2/6/24 11:56	ASE	
Total Suspended Solids	B240408	58.4	mg/L	0.900	0.900	SM 2540 D-2015	02/04/24	2/4/24 12:51	CLH	
Turbidity	B240400	106	NTU	1.2	0.3	EPA 180.1, Rev. 2.0 (1993)	02/02/24	2/2/24 14:08	LRF	D
Dissolved Wet Chemistry										
Orthophosphate, as P	B240398	0.171	mg/L	3.00E-3	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	02/02/24	2/2/24 14:30	RKT	
Total Metals										
Mercury	B240440	0.0148	ug/L	0.0100	0.0100	EPA 245.1	02/07/24	2/8/24 8:30	SAS	
Arsenic	B240405	2.4	ug/L	0.070	0.070	EPA 200.8	02/04/24	2/8/24 13:54	DMW	
Cadmium	B240405	0.058	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/8/24 13:54	DMW	
Calcium	B240429	10.0	mg/L	0.0400	0.0400	EPA 200.7	02/06/24	2/8/24 12:03	AMO	
Lead	B240405	4.8	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/8/24 13:54	DMW	
Magnesium	B240429	4370	ug/L	80.0	80.0	EPA 200.7	02/06/24	2/8/24 12:03	AMO	
Phosphorus as P	B240429	0.321	mg/L	0.0120	0.0120	EPA 200.7	02/06/24	2/8/24 12:03	AMO	
Hardness	B240429	43.0	mg/L	0.100	0.100	SM 2340 B-2011	02/06/24	2/8/24 12:03	AMO	
Dissolved Metals										
Cadmium	B240406	<0.0100	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/4/24 14:53	DMW	U
Copper	B240406	3.9	ug/L	0.15	0.15	EPA 200.8	02/04/24	2/4/24 14:53	DMW	
Lead	B240406	0.18	ug/L	9.00E-3	9.00E-3	EPA 200.8	02/04/24	2/4/24 14:53	DMW	
Zinc	B240406	25.7	ug/L	0.50	0.50	EPA 200.8	02/04/24	2/4/24 14:53	DMW	

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Report Date: 03/19/2024 10:19

Revised Report

Boise City Public Works
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Analysis Report

Location:	ACST1C	Location Description:	240201-11-103
Date/Time Collected:	02/02/2024 04:16 - 02/02/2024 10:16		
Lab Number:	AC00329-06	Sample Collector:	S.T
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B240477	170		35.0	35.0	SM 4500-NH3 D-2011	02/09/24	2/9/24 9:36	ALN	
BOD5	B240404	8.90	mg/L	2.00	2.00	SM 5210 B-2016	02/03/24	2/8/24 9:34	ASE	
Chloride	B240518	35.6	mg/L	0.0800	0.0800	EPA 300.0, Rev. 2.1 (1993)	02/12/24	2/12/24 20:36	BAK	
COD	B240401	83.0	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	02/03/24	2/3/24 10:18	RKT	
Nitrate-Nitrite, as N	B240479	0.378	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	02/09/24	2/9/24 11:19	RKT	
TKN	B240548	1.35	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	02/15/24	2/16/24 10:06	JAL	
Total Dissolved Solids	B240407	140	mg/L	20.0	20.0	SM 2540 C-2015	02/02/24	2/6/24 11:57	ASE	
Total Suspended Solids	B240408	53.8	mg/L	0.900	0.900	SM 2540 D-2015	02/04/24	2/4/24 12:48	CLH	
Turbidity	B240400	113	NTU	1.2	0.3	EPA 180.1, Rev. 2.0 (1993)	02/02/24	2/2/24 14:16	LRF	D
Dissolved Wet Chemistry										
Orthophosphate, as P	B240398	0.172	mg/L	3.00E-3	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	02/02/24	2/2/24 14:31	RKT	
Total Metals										
Mercury	B240440	0.0127	ug/L	0.0100	0.0100	EPA 245.1	02/07/24	2/8/24 8:34	SAS	
Arsenic	B240405	2.4	ug/L	0.070	0.070	EPA 200.8	02/04/24	2/8/24 13:57	DMW	
Cadmium	B240405	0.052	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/8/24 13:57	DMW	
Calcium	B240429	9.88	mg/L	0.0400	0.0400	EPA 200.7	02/06/24	2/8/24 12:06	AMO	
Lead	B240405	4.9	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/8/24 13:57	DMW	
Magnesium	B240429	4290	ug/L	80.0	80.0	EPA 200.7	02/06/24	2/8/24 12:06	AMO	
Phosphorus as P	B240429	0.312	mg/L	0.0120	0.0120	EPA 200.7	02/06/24	2/8/24 12:06	AMO	
Hardness	B240429	42.4	mg/L	0.100	0.100	SM 2340 B-2011	02/06/24	2/8/24 12:06	AMO	
Dissolved Metals										
Cadmium	B240406	0.011	ug/L	0.010	0.010	EPA 200.8	02/04/24	2/4/24 14:56	DMW	
Copper	B240406	3.7	ug/L	0.15	0.15	EPA 200.8	02/04/24	2/4/24 14:56	DMW	
Lead	B240406	0.19	ug/L	9.00E-3	9.00E-3	EPA 200.8	02/04/24	2/4/24 14:56	DMW	
Zinc	B240406	26.6	ug/L	0.50	0.50	EPA 200.8	02/04/24	2/4/24 14:56	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 03/19/2024 10:19

Revised Report

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Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry									
Batch: B240400									
Blank (B240400-BLK1)									
Turbidity	<0.3	NTU					02/02/2024	LRF	U
LCS (B240400-BS1)									
Turbidity			99.5	90-110			02/02/2024	LRF	
Duplicate (B240400-DUP1)	Source ID: AC00329-02								
Turbidity					9.90	25	02/02/2024	LRF	D
Batch: B240401									
Blank (B240401-BLK1)									
COD	<7	mg/L					02/03/2024	RKT	U
LCS (B240401-BS1)									
COD			95.7	90-110			02/03/2024	RKT	
Duplicate (B240401-DUP1)	Source ID: AC00330-01								
COD					0.00	10	02/03/2024	RKT	
Batch: B240404									
Blank (B240404-BLK1)									
BOD5	<2	mg/L					02/08/2024	ASE	U
LCS (B240404-BS1)									
BOD5			107	84.6-115.4			02/08/2024	ASE	
LCS (B240404-BS2)									
BOD5			100	84.6-115.4			02/08/2024	ASE	
Duplicate (B240404-DUP1)	Source ID: BB03562-02								
BOD5					3.49	30	02/08/2024	ASE	D
Batch: B240407									
Blank (B240407-BLK1)									
Total Dissolved Solids	<20	mg/L					02/06/2024	ASE	U
LCS (B240407-BS1)									
Total Dissolved Solids			92.4	90-110			02/06/2024	ASE	
Duplicate (B240407-DUP1)	Source ID: AC00330-01								
Total Dissolved Solids					1.35	10	02/06/2024	ASE	

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Quality Control Report
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Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B240408									
Blank (B240408-BLK1)									
Total Suspended Solids	<0.9	mg/L					02/04/2024	CLH	U
LCS (B240408-BS1)									
Total Suspended Solids			97.1	90-110			02/04/2024	CLH	
Duplicate (B240408-DUP1) Source ID: AC00330-01									
Total Suspended Solids					5.76	20	02/04/2024	CLH	
Duplicate (B240408-DUP2) Source ID: BB03562-01									
Total Suspended Solids					3.48	20	02/04/2024	CLH	
Batch: B240477									
Blank (B240477-BLK1)									
Ammonia, as N	<35	ug/L					02/09/2024	ALN	U
Blank (B240477-BLK2)									
Ammonia, as N	<35	ug/L					02/09/2024	ALN	U
LCS (B240477-BS1)									
Ammonia, as N			101	90-110			02/09/2024	ALN	
LCS (B240477-BS2)									
Ammonia, as N			103	90-110			02/09/2024	ALN	
Duplicate (B240477-DUP1) Source ID: BB03559-02									
Ammonia, as N					1.51	10	02/09/2024	ALN	
Duplicate (B240477-DUP2) Source ID: LS01853-02									
Ammonia, as N					0.108	10	02/09/2024	ALN	
Duplicate (B240477-DUP3) Source ID: BB03578-01									
Ammonia, as N					0.524	10	02/09/2024	ALN	
Duplicate (B240477-DUP4) Source ID: BB03570-04									
Ammonia, as N					0.00	10	02/09/2024	ALN	
Matrix Spike (B240477-MS1) Source ID: BB03559-02									
Ammonia, as N			106	80-120			02/09/2024	ALN	
Matrix Spike (B240477-MS2) Source ID: LS01853-02									
Ammonia, as N			106	80-120			02/09/2024	ALN	
Matrix Spike (B240477-MS3) Source ID: BB03578-01									
Ammonia, as N			103	80-120			02/09/2024	ALN	
Matrix Spike (B240477-MS4) Source ID: BB03570-04									
Ammonia, as N			102	80-120			02/09/2024	ALN	
Matrix Spike Dup (B240477-MSD1) Source ID: BB03559-02									
Ammonia, as N			104	80-120	1.15	10	02/09/2024	ALN	
Matrix Spike Dup (B240477-MSD2) Source ID: LS01853-02									
Ammonia, as N			107	80-120	0.685	10	02/09/2024	ALN	
Matrix Spike Dup (B240477-MSD3) Source ID: BB03578-01									
Ammonia, as N			106	80-120	2.14	10	02/09/2024	ALN	

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Quality Control Report
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Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B240477 (Continued)									
Matrix Spike Dup (B240477-MSD4) Source ID: BB03570-04									
Ammonia, as N			103	80-120	0.553	10	02/09/2024	ALN	
Batch: B240479									
Blank (B240479-BLK1)									
Nitrate-Nitrite, as N	<0.025	mg/L					02/09/2024	RKT	U
Blank (B240479-BLK2)									
Nitrate-Nitrite, as N	<0.025	mg/L					02/09/2024	RKT	U
Blank (B240479-BLK3)									
Nitrate-Nitrite, as N	<0.025	mg/L					02/09/2024	RKT	U
LCS (B240479-BS1)									
Nitrate-Nitrite, as N			99.7	90-110			02/09/2024	RKT	
LCS (B240479-BS2)									
Nitrate-Nitrite, as N			98.9	90-110			02/09/2024	RKT	
LCS (B240479-BS3)									
Nitrate-Nitrite, as N			97.7	90-110			02/09/2024	RKT	
Duplicate (B240479-DUP1) Source ID: BB03548-02RE1									
Nitrate-Nitrite, as N					NR	10	02/09/2024	RKT	
Duplicate (B240479-DUP2) Source ID: BB03578-04									
Nitrate-Nitrite, as N					2.93	10	02/09/2024	RKT	
Duplicate (B240479-DUP3) Source ID: LS01856-02									
Nitrate-Nitrite, as N					0.191	10	02/09/2024	RKT	
Duplicate (B240479-DUP4) Source ID: WB02951-06									
Nitrate-Nitrite, as N					0.252	10	02/09/2024	RKT	
Duplicate (B240479-DUP5) Source ID: BB03584-01									
Nitrate-Nitrite, as N					0.814	10	02/09/2024	RKT	
Matrix Spike (B240479-MS1) Source ID: BB03548-02RE1									
Nitrate-Nitrite, as N			99.2	90-110			02/09/2024	RKT	
Matrix Spike (B240479-MS2) Source ID: BB03578-04									
Nitrate-Nitrite, as N			95.4	90-110			02/09/2024	RKT	
Matrix Spike (B240479-MS3) Source ID: LS01856-02									
Nitrate-Nitrite, as N			96.4	90-110			02/09/2024	RKT	
Matrix Spike (B240479-MS4) Source ID: WB02951-06									
Nitrate-Nitrite, as N			96.5	90-110			02/09/2024	RKT	
Matrix Spike (B240479-MS5) Source ID: BB03584-01									
Nitrate-Nitrite, as N			98.3	90-110			02/09/2024	RKT	
Matrix Spike Dup (B240479-MSD1) Source ID: BB03548-02RE1									
Nitrate-Nitrite, as N			97.8	90-110	1.46	10	02/09/2024	RKT	
Matrix Spike Dup (B240479-MSD2) Source ID: BB03578-04									
Nitrate-Nitrite, as N			94.6	90-110	0.730	10	02/09/2024	RKT	

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Quality Control Report
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Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B240479 (Continued)									
Matrix Spike Dup (B240479-MSD3) Source ID: LS01856-02									
Nitrate-Nitrite, as N			98.1	90-110	0.886	10	02/09/2024	RKT	
Matrix Spike Dup (B240479-MSD4) Source ID: WB02951-06									
Nitrate-Nitrite, as N			96.3	90-110	0.0725	10	02/09/2024	RKT	
Matrix Spike Dup (B240479-MSD5) Source ID: BB03584-01									
Nitrate-Nitrite, as N			98.4	90-110	0.0649	10	02/09/2024	RKT	
Batch: B240518									
Blank (B240518-BLK1)									
Chloride	<0.08	mg/L					02/12/2024	BAK	U
Blank (B240518-BLK2)									
Chloride	<0.08	mg/L					02/13/2024	BAK	U
LCS (B240518-BS1)									
Chloride			97.6	90-110			02/12/2024	BAK	
LCS (B240518-BS2)									
Chloride			98.1	90-110			02/13/2024	BAK	
LCS (B240518-BS3)									
Chloride			97.6	90-110			02/12/2024	BAK	
Duplicate (B240518-DUP1) Source ID: LS01859-01									
Chloride					0.0260	10	02/12/2024	BAK	
Duplicate (B240518-DUP2) Source ID: ES00298-02									
Chloride					0.0302	10	02/13/2024	BAK	
Duplicate (B240518-DUP3) Source ID: LS01859-01RE1									
Chloride					0.0989	10	02/13/2024	BAK	D
Matrix Spike (B240518-MS1) Source ID: LS01859-01									
Chloride			93.6	90-110			02/12/2024	BAK	
Matrix Spike (B240518-MS2) Source ID: ES00298-02									
Chloride			96.1	90-110			02/13/2024	BAK	
Matrix Spike (B240518-MS3) Source ID: LS01859-01RE1									
Chloride			97.1	90-110			02/13/2024	BAK	D
Matrix Spike (B240518-MS4) Source ID: AC00329-02									
Chloride			94.4	90-110			02/12/2024	BAK	
Matrix Spike (B240518-MS5) Source ID: AC00329-02									
Chloride			94.8	90-110			02/13/2024	BAK	
Matrix Spike (B240518-MS6) Source ID: WQ00200-05									
Chloride			95.5	90-110			02/13/2024	BAK	
Matrix Spike Dup (B240518-MSD1) Source ID: LS01859-01									
Chloride			94.0	90-110	0.127	10	02/12/2024	BAK	
Matrix Spike Dup (B240518-MSD2) Source ID: ES00298-02									
Chloride			95.7	90-110	0.192	10	02/13/2024	BAK	

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Quality Control Report
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Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B240518 (Continued)									
Matrix Spike Dup (B240518-MSD3) Source ID: LS01859-01RE1									
Chloride			98.0	90-110	0.388	10	02/13/2024	BAK	D
Batch: B240548									
Blank (B240548-BLK1)									
TKN	<0.1	mg/L					02/16/2024	JAL	U
Blank (B240548-BLK2)									
TKN	<0.1	mg/L					02/16/2024	JAL	U
Blank (B240548-BLK3)									
TKN	<0.1	mg/L					02/16/2024	JAL	U
LCS (B240548-BS1)									
TKN			100	80-120			02/16/2024	JAL	
LCS (B240548-BS2)									
TKN			106	80-120			02/16/2024	JAL	
LCS (B240548-BS3)									
TKN			94.4	80-120			02/16/2024	JAL	
Duplicate (B240548-DUP1) Source ID: AC00329-01									
TKN					0.415	20	02/16/2024	JAL	
Duplicate (B240548-DUP2) Source ID: BB03570-01									
TKN					2.83	20	02/16/2024	JAL	D
Duplicate (B240548-DUP3) Source ID: BB03578-03									
TKN					1.87	20	02/16/2024	JAL	D
Duplicate (B240548-DUP4) Source ID: LS01856-05									
TKN					5.74	20	02/16/2024	JAL	D
Matrix Spike (B240548-MS1) Source ID: AC00329-01									
TKN			99.7	80-120			02/16/2024	JAL	
Matrix Spike (B240548-MS2) Source ID: BB03570-01									
TKN			99.2	80-120			02/16/2024	JAL	D
Matrix Spike (B240548-MS3) Source ID: BB03578-03									
TKN			102	80-120			02/16/2024	JAL	D
Matrix Spike (B240548-MS4) Source ID: LS01856-05									
TKN			86.1	80-120			02/16/2024	JAL	D
Matrix Spike (B240548-MS5) Source ID: WQ00200-03									
TKN			97.5	80-120			02/16/2024	JAL	
Matrix Spike (B240548-MS6) Source ID: WQ00200-04									
TKN			94.9	80-120			02/16/2024	JAL	
Matrix Spike Dup (B240548-MSD1) Source ID: AC00329-01									
TKN			101	80-120	1.39	20	02/16/2024	JAL	
Matrix Spike Dup (B240548-MSD2) Source ID: BB03570-01									
TKN			99.6	80-120	0.237	20	02/16/2024	JAL	D

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Quality Control Report
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Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B240548 (Continued)									
Matrix Spike Dup (B240548-MSD3) Source ID: BB03578-03									
TKN			104	80-120	0.657	20	02/16/2024	JAL	D
Matrix Spike Dup (B240548-MSD4) Source ID: LS01856-05									
TKN			92.5	80-120	2.57	20	02/16/2024	JAL	D
Dissolved Wet Chemistry									
Batch: B240398									
Blank (B240398-BLK1)									
Orthophosphate, as P	<0.003	mg/L					02/02/2024	RKT	U
LCS (B240398-BS1)									
Orthophosphate, as P			98.7	90-110			02/02/2024	RKT	
Duplicate (B240398-DUP1) Source ID: WB02944-06									
Orthophosphate, as P					0.461	10	02/02/2024	RKT	D
Duplicate (B240398-DUP2) Source ID: LS01852-02									
Orthophosphate, as P					0.270	10	02/02/2024	RKT	D
Matrix Spike (B240398-MS1) Source ID: WB02944-06									
Orthophosphate, as P			103	90-110			02/02/2024	RKT	D
Matrix Spike (B240398-MS2) Source ID: LS01852-02									
Orthophosphate, as P			102	90-110			02/02/2024	RKT	D
Matrix Spike Dup (B240398-MSD1) Source ID: WB02944-06									
Orthophosphate, as P			102	90-110	0.249	10	02/02/2024	RKT	D
Matrix Spike Dup (B240398-MSD2) Source ID: LS01852-02									
Orthophosphate, as P			102	90-110	0.0492	10	02/02/2024	RKT	D

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Quality Control Report
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Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Total Metals									
Batch: B240405									
Blank (B240405-BLK1)									
Arsenic	<0.070	ug/L					02/08/2024	DMW	U
Cadmium	<0.010	ug/L					02/08/2024	DMW	U
Lead	<0.010	ug/L					02/08/2024	DMW	U
LCS (B240405-BS1)									
Arsenic			101	85-115			02/08/2024	DMW	
Cadmium			101	85-115			02/08/2024	DMW	
Lead			102	85-115			02/08/2024	DMW	
Duplicate (B240405-DUP1) Source ID: AC00329-01									
Arsenic					2.22	20	02/08/2024	DMW	
Cadmium					2.34	20	02/08/2024	DMW	
Lead					2.48	20	02/08/2024	DMW	
Matrix Spike (B240405-MS1) Source ID: AC00329-01									
Arsenic			97.6	70-130			02/08/2024	DMW	
Cadmium			100	70-130			02/08/2024	DMW	
Lead			101	70-130			02/08/2024	DMW	
Matrix Spike Dup (B240405-MSD1) Source ID: AC00329-01									
Arsenic			98.3	70-130	0.625	20	02/08/2024	DMW	
Cadmium			101	70-130	0.665	20	02/08/2024	DMW	
Lead			101	70-130	0.234	20	02/08/2024	DMW	
Batch: B240429									
Blank (B240429-BLK1)									
Calcium	<0.04	mg/L					02/08/2024	AMO	U
Magnesium	<80	ug/L					02/08/2024	AMO	U
Phosphorus as P	<0.012	mg/L					02/08/2024	AMO	U
LCS (B240429-BS1)									
Calcium			102	85-115			02/08/2024	AMO	
Magnesium			103	85-115			02/08/2024	AMO	
Phosphorus as P			101	85-115			02/08/2024	AMO	
Duplicate (B240429-DUP1) Source ID: AC00330-01									
Calcium					1.74	20	02/08/2024	AMO	
Magnesium					1.98	20	02/08/2024	AMO	
Phosphorus as P					0.174	20	02/08/2024	AMO	
Matrix Spike (B240429-MS1) Source ID: AC00330-01									
Calcium			102	70-130			02/08/2024	AMO	
Magnesium			102	70-130			02/08/2024	AMO	
Phosphorus as P			101	70-130			02/08/2024	AMO	
Matrix Spike Dup (B240429-MSD1) Source ID: AC00330-01									
Calcium			102	70-130	0.0523	20	02/08/2024	AMO	
Magnesium			102	70-130	0.188	20	02/08/2024	AMO	
Phosphorus as P			102	70-130	0.474	20	02/08/2024	AMO	

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Quality Control Report
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Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Total Metals (Continued)									
Batch: B240440									
Blank (B240440-BLK1)									
Mercury	<0.01	ug/L					02/08/2024	SAS	U
LCS (B240440-BS1)									
Mercury			103	85-115			02/08/2024	SAS	
Duplicate (B240440-DUP1) Source ID: AC00329-04									
Mercury					NR	20	02/08/2024	SAS	U
Matrix Spike (B240440-MS1) Source ID: AC00329-04									
Mercury			106	70-130			02/08/2024	SAS	
Matrix Spike Dup (B240440-MSD1) Source ID: AC00329-04									
Mercury			109	70-130	2.55	20	02/08/2024	SAS	
Dissolved Metals									
Batch: B240406									
Blank (B240406-BLK1)									
Cadmium	<0.010	ug/L					02/04/2024	DMW	U
Copper	<0.15	ug/L					02/04/2024	DMW	U
Lead	<0.0090	ug/L					02/04/2024	DMW	U
Zinc	<0.50	ug/L					02/04/2024	DMW	U
LCS (B240406-BS1)									
Cadmium			103	85-115			02/04/2024	DMW	
Copper			97.2	85-115			02/04/2024	DMW	
Lead			102	85-115			02/04/2024	DMW	
Zinc			98.7	85-115			02/04/2024	DMW	
Duplicate (B240406-DUP1) Source ID: AC00329-02									
Cadmium					14.8	10	02/04/2024	DMW	QC-02
Copper					0.197	10	02/04/2024	DMW	
Lead					1.65	10	02/04/2024	DMW	
Zinc					1.45	10	02/04/2024	DMW	
Matrix Spike (B240406-MS1) Source ID: AC00329-02									
Cadmium			100	70-130			02/04/2024	DMW	
Copper			92.7	70-130			02/04/2024	DMW	
Lead			97.8	70-130			02/04/2024	DMW	
Zinc			94.2	70-130			02/04/2024	DMW	
Matrix Spike Dup (B240406-MSD1) Source ID: AC00329-02									
Cadmium			99.4	70-130	0.723	10	02/04/2024	DMW	
Copper			93.3	70-130	0.456	10	02/04/2024	DMW	
Lead			99.7	70-130	1.89	10	02/04/2024	DMW	
Zinc			96.0	70-130	1.20	10	02/04/2024	DMW	

Report Date: 03/19/2024 10:19

Revised Report

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Notes and Definitions

Item	Definition
D	Data reported from a dilution
QC-02	The RPD is greater than the method acceptance criteria. At least one of the values used to calculate the RPD, is less than or equal to the PQL.
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

for JFK

Janet Finegan-Kelly
Water Quality Laboratory Manager

Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Ada County Highway District

Attn: Steven Turner
3775 Adams Street
Garden City, Idaho 83714–6418
Tel. (208) 387–6269
Fax (208) 387–6391

Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Kristen Christensen, Steven Turner

Lab# AC00329	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	~~E. Coli - IDEXX Colilert~~ Chlorides	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
-01	2/1/24	2/2/24	1843	0757	240201-12-WC	ST	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1
-02	2/1/24	2/2/24	1811	0936	240201-14-WC	ST	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
Kristen Christensen	2/2/24 1019		
	2/2/24 1101	2-2-24 1102	

Ada County Highway District

Attn: Steven Turner
3775 Adams Street
Garden City, Idaho 83714–6418
Tel. (208) 387–6269
Fax (208) 387–6391

Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Steven Turner
Kristin Chisholm

Lab# AC00329	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	~~E Coli~~ ~~IDEXX Colilert~~ Chlorides	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
-03	2/1/24	2/1/24	0335	0930	240201-206-WC	ST	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
Kristin Chisholm	2/2/24 1019		
	2/2/24 1102	2-2-24 1102	

Ada County Highway District

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Garden City, Idaho 83714–6418
Tel. (208) 387–6269
Fax (208) 387–6391

Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Kristin Chisholm, Steven Turner

Lab# AC00329	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	~~E. Coli~~ ~~IDEXX~~ Coliert Chloride	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
-04	2/1/24	2/2/24	1742	0926	240201-03-WC	~~KC~~ ST	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	4
-05	2/2/24	2/2/24	0416	1016	240201-11-WC	ST	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2
-06					240201-~~01~~11-103 (DUP)																				

Relinquished by (sign)	Date & Time Transferred	Received by (sign)
Kristen Chisholm	2/2/2024 1134	
	2/2/2024 1159	2-2-24 1159

Comments/Special Instructions:

If sufficient volume, please split 240201-11-WC for a duplicate analysis under the name 240201-11-103.
If low volume for 240201-03-WC, prioritize dissolved parameters, then any other parameters you can, please.

Modified

Ada County Highway District

Attn: Steven Turner
3775 Adams Street
Garden City, Idaho 83714–6418
Tel. (208) 387–6269
Fax (208) 387–6391

Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Steven Turner
Kristen Churchill

Lab#	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD$_5$ - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	~~E.Coli - IDEXX Colilert~~ Chlorides	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
AC00329	~~2/1/24~~ wdt																								
-03	~~2/1/24~~ 2/1/24	2/2/24	~~0355~~ 1909	0936	24D201-206-WC	ST	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2
	2/1/24		1909	0936																					

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
Kristen Churchill	2/2/24 1019		
	2/2/24 1102	2-2-24 1102	

coc_wql-pi

AC00329

WY22

Modified

Ada County Highway District

Attn: Steven Turner
3775 Adams Street
Garden City, Idaho 83714–6418
Tel. (208) 387–6269
Fax (208) 387–6391

Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Kristen Chisholm, Steve Tibbetts

Lab# AC00329	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	~~E. Coli - IDEXX Colilert~~ Chlorides	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 D	Total Containers
-04	2/1/24	2/2/24	1342	0926	240201-03-WC	~~KC~~ ST	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	4
-05	~~2/2/24~~ 2/1/24	2/2/24	0416	1016	240201-11-WC	ST	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2
-06					240201-~~01~~ 11-103 (DUP)																				

Relinquished by (sign)	Date & Time Transferred	Received by (sign)
Kristen Chisholm	2/2/2024 1134	
	2/2/2024 1159	2-2-24 1159

Comments/Special Instructions:

If sufficient volume, please split 240201-11-WC for a duplicate analysis under the name 240201-11-103.
If low volume for 240201-03-WC, prioritize dissolved parameters, then any other parameters you can, please.

AC00329

Azubike Emenari

To: Steven Turner; Stephen Quintero
Cc: Monica Lowe
Subject: RE: [External] RE: 2/2/24 Lab Report Issue

From: Steven Turner <sturner@achdidaho.org>
Sent: Wednesday, March 13, 2024 1:50 PM
To: Azubike Emenari <AEmenari@cityofboise.org>; Stephen Quintero <SQuintero@cityofboise.org>
Cc: Monica Lowe <mlowe@achdidaho.org>
Subject: [External] RE: 2/2/24 Lab Report Issue

Hey lab folks,

Apologies asking for more changes to the 2/1/24 storm, but we noticed a few additional times that needed to be changed to the analysis report. Here is also a rewritten chain of custody.

The following samples need their times adjusted:

- AC00329-03 begin time is 19:09 on 2/1/24 (previously written as 2/2/2024 3:35)
- AC00329-05 begin time is 4:16 on 2/1/24 (previously written as 2/2/2024 04:16)

It's not a big deal if these changes can't be made but let me know when we can expect this document to be sent over.

Again, sorry for the changes. We really appreciate all you do.

Best,
Steven Turner
Environmental Specialist | Environmental Department

Ada County Highway District (ACHD)
3775 Adams Street, Garden City, Idaho 83714
Phone: (208)407-4284
www.achdidaho.org
Connect with us on social! ***@achdidaho***

ACHD
connecting you to more

From: Steven Turner
Sent: Tuesday, March 12, 2024 2:17 PM

ACHD Sample Filtration, Splitting, and Compositing for Metals

Sample	Split/Filter Info	Filter Used	Bottle/Lid Lots	Bottles Split	Comments
Lims#: AC00329-01 Location: ACSTIC Sample Date: 2-2-24 Sample ID: 240201-12-WC 1	Split Date: 2-2-24 Start Split: 1111 Start Filter: 1111 Comp Time: N/A Analyst: AMO/DKT	Filter: ☒Voss ☒0.45µm high-capacity ☒5.0µm ☒10.0µm	Coll Jug: Not Avail. Comp Jug: N/A SS Tubing/Helper: CC00047-43 (SSA1) Stir Bar: CC00048-85 Connector:CC00035-68 and CC00041-31	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	only 1jug
Lims#: AC00329-02 Location: ACSTIC Sample Date: 2-2-24 Sample ID: 240201-14-WC 2	Split Date: 2-2-24 Start Split: 1125 Start Filter: 1125 Comp Time: 1121 Analyst: AMO/DKT	Filter: ☒Voss ☒0.45 high-capaacity ☒5.0µm ☒10.0µm	Coll Jug: CC00048-77 Comp Jug: CC00048-77 SS Tubing/Helper: CC00047-85 (SSA4) Stir Bar: CC00048-85 Connector: CC00040-06 and CC00039-71	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	Composited into (1) of the 10L
Lims#: AC00329-03 Location: ACSTIC Sample Date: 2-2-24 Sample ID: 240201-206-WC 3	Split Date: 2-2-24 Start Split: 1142 Start Filter: 1142 Comp Time: 1138 Analyst: AMO/DKT	Filter: ☒Voss ☒0.45µm high-capacity (x3) ☒5.0µm (x2) ☒10.0µm (x2)	Coll Jug: CC00047-32 Comp Jug: CC00048-86 SS Tubing/Helper: CC00048-70 (SSA5) Stir Bar: CC00048-85 Connector: CC00041-46 (x2)	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	Initially used (3) voss filters, but plugged after 500mL waste. used another (4) voss filters; was able to get needed volume then.
Lims#: AC00329-05 Location: ACSTIC Sample Date: 2-2-24 Sample ID: 240201-11-WC 4	Split Date: 2-2-24 Start Split: 1220 Start Filter: 1220 Comp Time: 1215 Analyst: AMO/DKT	Filter: ☒Voss ☒0.45µm high-capacity ☒5.0µm ☒10.0µm	Coll Jug: CC00048-78 (x2) CC00048-69 Comp Jug: CC002378 SS Tubing/Helper: CC00047-42 (SSA6) Stir Bar: CC00050-10 Connector: CC00041-46 (x2)	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	Composited into 40L Round
Lims#: AC00329-06 Location: ACSTIC Sample Date: 2-2-24 Sample ID: 240201-11-WC (Dup) 103 5 Dup	Split Date: 2-2-24 Start Split: 1135 Start Filter: 1135 Comp Time: 1215 Analyst: AMO/DKT	Filter: ☒Voss ☒0.45µm high-capacity ☒5.0µm ☒10.0µm	Coll Jug: CC00048-78 (x2) Comp Jug: CC002378 SS Tubing/Helper: CC00047-18 (SSA7) Stir Bar: ~~CC00034-BB~~ (Dup) Connector: CC00044-99 (x2)	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	Duplicate

ACHD SAMPLE FILTRATION, SPLITTING, AND COMPOSITING FOR METALS

Sample	Split/Filter Info	Filter Used	Bottle/Lid Lots	Bottles Split	Comments
Lims#: AC00329-04 Location: ACSTIC Sample Date: 2-2-24 Sample ID: ~~AMO/DKT~~ (DF) 240201-03-WC 6	Split Date: 2-2-24 Start Split: 1252 Start Filter: 1252 Comp Time: N/A Analyst: AMO/DKT	Filter: ☒Voss ☒0.45µm high-capacity ☒5.0µm ☒10.0µm	Coll Jug: CC00048-77 Comp Jug: N/A SS Tubing/Helper: CC00048-70 (SSA8) Stir Bar: CC00040-97 Connector: CC00044-99 (x2)	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	Only 1 jug.
Lims#: ~~AC00329-04~~ AC00330-01 (DF) Location: ACSI2C Sample Date: 2-2-24 Sample ID: 240201-18-WC 7	Split Date: 2-2-24 Start Split: 1315 Start Filter: 1315 Comp Time: 1312 Analyst: AMO/DKT	Filter: ☒Voss ☒0.45µm high-capacity ☐~~1.0µm~~ ☒5.0µm ☒Other: 10.0µm	Coll Jug: CC00048-78 (x2) Comp Jug: CC00048-78 SS Tubing: SS17 SS Helper: CC00050-08 Stir Bar: CC00037-BB3 Connector: CC00044-96 CC00048-69	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	2nd jug had low volume and was noticeably lighter in color.
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☐Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☐Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: ☒Voss ☒0.45µm ☐1.0µm ☒5.0µm ☐Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☐_____ ☒COD ☐_____	

Technical Memorandum

1290 W. Myrtle St. Suite 340
Boise, ID 83702

Phone: 801.316.9859

Prepared for: Ada County Highway District

Project Title: NPDES Phase I Stormwater Support WY 2024

Project No.: 159103

Technical Memorandum

Subject: ACHD Phase I Storm Event Report for February 26, 2024

Date: May 24, 2024

To: Monica Lowe

Cc: Steven Turner

Kristen Chisholm

From: Zuly Lapa, Project Engineer

Prepared by: Zuly Lapa, EIT, Project Engineer

Reviewed by: Melissa Jannusch, PE, Project Manager

Section 1: Introduction

The Environmental Protection Agency Region 10 reissued a Municipal Separate Storm Sewer System Phase I National Pollutant Discharge Elimination System Permit (NPDES Permit), effective October 1, 2021, to Ada County Highway District (ACHD), Boise City, Ada County Drainage District No. 3, Idaho Transportation Department District 3, Boise State University, and Garden City. Under the NPDES Permit, Permittees are required to continue to conduct wet weather stormwater outfall monitoring and subwatershed monitoring. Four outfall monitoring sites (Lucky, Whitewater, Main, and Americana) and one subwatershed monitoring site (AS_6) have been established. The AS_6 site represents a subwatershed located within the Americana watershed. At each site, a minimum of three composite and three grab samples will be collected during Water Year (WY) 2024 (October 1, 2023, through September 30, 2024). The following storm event report summarizes stormwater sampling results from the February 26, 2024, storm event.

Section 2: Project Status

Table 2-1 is a summary of the sample types collected to date for WY 2024 Phase I Stormwater Outfall Monitoring. When samples are qualified, additional samples will be attempted from subsequent storms to collect unqualified samples.

Table 2-1. WY 2024 Samples Collected

Date	Lucky	Whitewater	Main	Americana	AS_6
October 10, 2023	G, C[1,2]	G	--	G, C[3]	--
November 19, 2023	G, C	G, C	G, C	G[4], C	G, C
February 1, 2024	G[5], C	G[5], C[6]	G[5], C	G[5], C	G[5], C
February 26, 2024	G, C	G, C	G, C[7]	G, C	G, C
Unqualified Samples:	3G, 3C	3G, 2C	2G, 2C	2G, 3C	2G, 3C
Samples Remaining:	0G, 0C	0G, 1C	1G, 1C	1G, 0C	1G, 0C

Notes:

-- = no samples taken

C = composite sample

G = grab sample

[1] Composite samples qualified due to lack of representativeness (50% – 75%).

[2] Incomplete water quality analysis due to low composite sample volume.

[3] Composite samples qualified due to lack of representativeness (50% – 75%) of the calculated flow volume.

[4] Incomplete field parameter collection on the grab sample data form due to field error.

[5] E. coli sample qualified due to exceeded hold time.

[6] Composite sample rejected due to automatic sampler triggering prior to storm event runoff. The subsamples taken prior to the event represented more than 10% of the composite volume.

[7] Composite sample qualified due to automatic sampler triggering prior to storm event runoff. The subsamples taken prior to the event represented less than 10% of the composite volume.

Section 3: Storm Event Summary

The February 26, 2024, storm event and the subsequent preparation and sampling efforts are detailed in the following sections.

3.1 Storm Detail

A summary of the forecast on which monitoring decisions were based is detailed below. The sampling event communication form that describes the forecast and summarizes the decision-making process from February 26, 2024, is included in Attachment A for reference.

Saturday, February 24, 2024 (Sampling Event Communication)

- On the afternoon of February 24, the National Weather Service issued a forecast for widespread rain in the Boise area, starting February 26 at 0400 and ending at 1500, with the heaviest precipitation from 1000 to 1300. The chance of precipitation was 90%, with 0.30 inches of precipitation forecasted.

Sunday, February 25, 2024 (Set Up)

- Setup was accomplished in the morning of February 25. An expected precipitation depth of 0.11 inches was used to set trigger volumes at monitoring stations. A runoff calculations worksheet showing how the trigger volumes were calculated is included in Attachment A.

Monday, February 26, 2024 (Storm Event)

- Moderate rain first started at approximately February 26 at 0821 and ended at 1241. A stronger second wave of rain started soon after around 1230 and ended at 2032.
- Precipitation totals ranged between 0.13 and 0.21 inches at local rain gauges.

Flow measurements and precipitation data are listed in Table 1 along with a sampling summary. Hydrographs for the Lucky, Whitewater, Main, Americana and AS_6 site showing flow, rain, and sample collection data are included in Attachment B.

3.2 Sampling Summary

Lucky, Whitewater, Main, Americana and AS_6 monitoring stations were set up on February 25, to collect flow-proportional composite samples during the storm. Sampler enable conditions were programmed into the Whitewater and Americana flowmeters. A site-specific velocity cutoff value was programmed into Lucky, Main, and AS_6 flowmeter. Setup and sampling information are included in Table 1. The field forms completed during setup/shutdown and sampling are included in Attachment C.

Grab Samples

Two, two-member teams mobilized to collect stormwater runoff grab samples and verify operation of the automatic sampling equipment on February 26 around 0910. Grab samples for Lucky, Whitewater, Main, Americana, and AS_6 were submitted to the West Boise Water Quality Lab (WQL) at 1201 on February 26.

Results for grab samples, including field parameter and analytical data, are included in Table 2. Laboratory analytical reports are included in Attachment D.

Composite Samples

Composite samples were collected at the Lucky, Whitewater, Main, and Americana monitoring station and submitted to the WQL at 2057 on February 26. The composite sample at AS_6 monitoring station was submitted at 2058 on February 26 to the WQL.

Analytical results are shown in Table 2 and pollutant loading estimates for the event are detailed in Table 3. Laboratory analytical reports are included in Attachment D.

Section 4: Quality Assurance/Quality Control

A summary of quality control samples collected during the February 26, 2024, storm event is presented below in Table 4-1. A field blank and a field duplicate were collected from the Main monitoring station. The analytical results for these samples are included in Table 4.

Table 4-1. Quality Control Samples

Sample ID	Sample Type	Parent Sample	Conclusions
240226-12-001	Field blank	Main grab	No *E. coli* detection was reported in the field blank.
240226-12-101	Field duplicate	Main grab	Relative percent difference was within the acceptable range.

Data quality objectives for this storm were evaluated and tracked using the data validation review checklist included in Attachment A.

An acceptable composite sample represents at least 75 percent of the total discharge or at least 6 hours of the storm duration. All composite samples, except for Main, met the criteria.

Prior to the start of the storm precipitation or runoff, three subsamples were successfully collected by the automatic sampler at the Main monitoring site. These subsamples are considered non-stormwater, as there was no evidence of flow or precipitation during the evening of February 25th through the morning of February 26th. Following the SWOMP guidelines, calculations were conducted to determine if the non-stormwater composite subsamples volume accounted for 10% of the total composite sample volume. The non-stormwater composite subsamples accounted for 8% of the total composite sample volume (see Table 4-2), qualifying the Main composite sample.

Table 4-2. Non-Stormwater Subsample Evaluation

Composite Sample Volume (ft^3)	Non-Stormwater Subsample Volume (ft^3)	Non-stormwater Subsample Ratio
11,165	913	8 %

Section 5: Notes and Recommendations

Main

The Main site collected non-stormwater samples at three instances prior to the sampling event. The samples had levels greater than the enabling condition of 1.87-inches. The sampler was programmed correctly at the time of set-up. Additional investigation is required to determine the cause of collecting samples when there was no evidence of flow or precipitation. ACHD will reach out to HACH for support.

Americana

Two “Skipped” sample messages were recorded during the composite sample collection at Americana. These sample messages appear when the sampling team pause the sampler program, stopping it from collecting the next subsample. The “Skipped’ sample messages do not affect the sampling data nor is shown on the hydrograph.

Data Tables

Table 1. Sampling and Flow Summary					
	Lucky	Whitewater	Main	Americana	AS_6
Grab samples collected and submitted?	YES	YES	YES	YES	YES
Composite samples collected and submitted?	YES	YES	YES	YES	YES
Trigger volume (gal or ft^3)	2895 gal	800 ft^3	3411 gal	2960 ft^3	137 ft^3
Velocity cutoff (fps)	--	--	--	--	0.02
Sampler enable condition (in)	Level > 2.72"	Level > 3.05"	Level > 1.87"	Level > 7.59"	--
Runoff start time	0839	0848	0834	0821	0915
Grab sample collection time	1017	0928	0919	0948	1012
Composite sample stop time	1534	1908	1601	1606	1620
Runoff stop time	1752	2032	1733	1752	1759
Volume of Discharge Sampled (ft^3)	3,573	30,558	11,165 [1]	115,368	4,873
Volume of non-stormwater subsamples (ft^3)	--	--	913	--	--
Total runoff volume (ft^3)	3,965	35,198	10,885	140,004	5,447
Percent of storm flow sampled (%)	90%	87%	103% [1]	83%	89%
Percent of non-stormwater volume to total discharge sampled volume (%)	--	--	8%	--	--
Composite sample duration (hrs)	6.5	9.5	17 [1]	7	6
Storm Precipitation (in)	0.13	0.21	0.18	0.18/0.18	0.18/0.18
Referenced Rain Gauge	Cynthia Mann	Whitewater	Front	Front/East	Front/East
Sampler messages (counts): Success	10	40	26	35	24
Number of composite bottles filled	1	2	2	2	2
Composite sample volume (Approx.; ml)	5,000 ml	23,500 ml	14,050 ml	20,500 ml	13,000 ml

Notes:

– = No data.

[1] Non stormwater samples were collected prior to the start of the storm precipitation or runoff

Table 2. Field and Analytical Data Summary

Monitoring Station	Sample Date	Sample ID Grab	Field Parameters				Analytical Parameters																					
			Dissolved Oxygen	pH	Conductivity	Temperature	E. coli	Sample ID Composite	BOD_5	COD	Hardness as $CaCO_3$	Turbidity	TSS	TDS	Total Phosphorus	Orthophosphate as P	Ammonia as N	Nitrate + Nitrite as N	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
			mg/L	S.U.	uS/cm	C	mpn/100 mL		mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Lucky	2/26/2024	240226-03-WG	9.89	8.27	125.9	4.75	37.9	240226-03-WC	13.5	60.0	53.2	18.9	18.1	114	0.262	0.124	0.476	0.969	1.71	2.6	4.5	0.031	4.5	0.028	0.72	0.0150	13.5
Whitewater	2/26/2024	240226-11-WG	10.88	7.74	749.2	5.97	38.3	240226-11-WC	12.6	84.0	77.8	52.3	47.3	182	0.347	0.174	0.596	0.921	2.43	2.6	0.014	0.062	4.4	0.093	3.8	0.0151	24.5
Main	2/26/2024	240226-12-WG	9.79	7.94	165.88	9.53	24.3	240226-12-WC	13.9 [SJ]	119 [SJ]	29.8 [SJ]	94.7 [SJ]	104 [SJ]	85.2 [SJ]	0.231 [SJ]	0.0631 [SJ]	0.829 [SJ]	0.424 [SJ]	1.96 [SJ]	1.5 [SJ]	0.032 [SJ]	0.13 [SJ]	5.6 [SJ]	0.12 [SJ]	6.1 [SJ]	0.0191 [SJ]	51.7 [SJ]
Americana	2/26/2024	240226-14-WG	10.54	7.53	470.55	8.74	125.9	240226-14-WC	12.6	85.0	102	51.1	54.3	214	0.276	0.106	0.496	0.940	1.47	3.3	0.021	0.097	4.0	0.063	3.9	0.0148	24.3
AS_6	2/26/2024	240226-206-WG	9.39	7.44	124.28	6.49	53.7	240226-206-WC	17.7	122	22.2	75.5	75.8	85.8	0.570	0.289	0.522	0.278	2.43	2.2	0.016	0.087	5.0	0.26	6.3	0.0183	20.2

Notes:

– = No data.

[SJ] Composite sample qualified due to non stormwater sample volume comprising less than 10% of the total composite sample volume

Table 3. Event Pollutant Loading Estimates in Pounds						
Monitoring Station	Event Date	TSS	Total Phosphorus	Ammonia as N	Nitrate + Nitrite as N	TKN
Lucky	2/26/2024	4.48	0.0648	0.118	0.240	0.423
Whitewater	2/26/2024	104	0.762	1.31	2.02	5.34
Main	2/26/2024	70.6 [5J]	0.157 [5J]	0.563 [5J]	0.288 [5J]	1.33 [5J]
Americana	2/26/2024	474	2.41	4.33	8.21	12.8
AS_6	2/26/2024	25.8	0.194	0.177	0.0945	0.826

Notes:

[5J] Composite sample qualified due to non stormwater sample volume comprising less than 10% of the total composite sample volume

Table 4. QC Sample Summary				
Date	Parent Sample	Sample ID	Type	E. coli
				mpn/100 mL
2/26/2024	240226-12-WG	240226-12-001	Field Blank	<1.0
2/26/2024	240226-12-WG	240226-12-101	Field Duplicate	26.9
Calculated parent/duplicate RPD				2%
Allowable RPD				40%

Attachment A: Supplemental Documents

Sampling Event Communication Form

Data Validation Checklist

Runoff Calculation Worksheet

SAMPLING EVENT COMMUNICATION FORM

Date: 02/24/2024	Time: 8:24 AM	Initials: ST
Is there a targeted sampling event during the next 36 hours? (Or, if it is Friday, is a targeted event expected before 5:00 PM Monday?)		Yes

Past 72 hr Precip	
Date and time of expected event	Monday, 2/26/24 @4:00 AM
Expected amount of precipitation	0.30"
Percent chance of precipitation	90%
Percent chance of >0.10" over 12 hours	75%

NWS Update

Spoke with Les from NWS and he thinks Boise will still get 0.3" of rain starting at 4:00 AM – 3:00 PM on Monday. It will be a heaviest around 10:00 AM – 1:00 PM.

Targeted Station & Samples

Lucky	Whitewater	Main	Americana	AS_6	State (Phase II)
☒ Grab	☒ Grab	☒ Grab	☒ Grab	☒ Grab	☒ Grab
☒ Composite	☒ Composite	☒ Composite	☒ Composite	☒ Composite	☒ Composite

Type of Forecasted Precipitation

☐ Light Rain	☒ Rain	☐ Rain on Snow
☐ Scattered Showers	☐ Thunder Showers	☐ Snowmelt
☐ Other:		

Reasons for Not Targeting a Forecasted Storm and/or Stations

☐ Holiday
☐ Waiting on Antecedent Dry Period – Expires:
☐ Equipment Concerns:
☐ Other:

Text Forecast

NWS Forecast for: 2 Miles NNW Garden City ID
Issued by: National Weather Service Boise, ID
Last Update: 4:08 am MST Feb 24, 2024

Today: Sunny, with a high near 60. South southeast wind 5 to 7 mph.
Tonight: Clear, with a low around 35. Southeast wind around 6 mph.
Sunday: Sunny, with a high near 62. Southeast wind 6 to 10 mph.
Sunday Night: A 20 percent chance of rain after 11pm. Increasing clouds, with a low around 41. South wind 6 to 10 mph.
Monday: Rain. High near 48. Breezy, with a south southwest wind 11 to 16 mph becoming west 18 to 23 mph in the morning. Winds could gust as high as 36 mph. Chance of precipitation is 90%. New precipitation amounts between a tenth and quarter of an inch possible.
Monday Night: A 20 percent chance of snow before 11pm. Mostly cloudy, with a low around 27. Blustery.
Tuesday: Partly sunny, with a high near 43.
Tuesday Night: A 20 percent chance of snow after 11pm. Mostly cloudy, with a low around 30.
Wednesday: A slight chance of rain and snow before 11am, then a chance of rain. Mostly cloudy, with a high near 50. Chance of precipitation is 30%.
Wednesday Night: A 30 percent chance of rain. Mostly cloudy, with a low around 40.

Thursday: A 40 percent chance of rain. Mostly cloudy, with a high near 57.
Thursday Night: Rain likely. Mostly cloudy, with a low around 38. Chance of precipitation is 60%.
Friday: Rain likely. Mostly cloudy, with a high near 54. Chance of precipitation is 70%.

Forecast Discussion

Area Forecast Discussion
National Weather Service Boise ID
354 AM MST **Sat** Feb 24 2024

.SHORT TERM...Today through Monday night...Sunny, mild and dry conditions today will give way to increasing clouds on Sunday. Most areas will see high temperatures around 10 degrees above **normal** both days, but below records. Snow covered mountain valleys won`t quite achieve the anomalous warmth, but will still warm above **normal**. Light precipitation will develop over the w-central Idaho mountains Sunday afternoon as a storm drops out of Canada. Given the mild **air mass** snow levels will start between 5-6kft, meaning rain in mountain valleys. The precipitation expands across the higher terrain in e-central Oregon and Boise mountains Sunday night. By sunrise Monday morning snow levels will range between 4500-5500 feet bringing a change from rain to snow in mountain valleys. It`s during the day Monday that we`ll see the heaviest snowfall rates in the mountains and rain fill in across the valleys as the upper **trough** and accompanying cold **front** drop through the region. At elevations above 5500-6000 feet, where its all snow, accumulations of 6-12 inches are possible with locally higher amounts. Have less confidence on accumulation in mountain valleys as snow will have to overcome recent mild temperatures and daytime **insolation** along with temperatures above freezing. For now will keep the WS **Watch** headline.

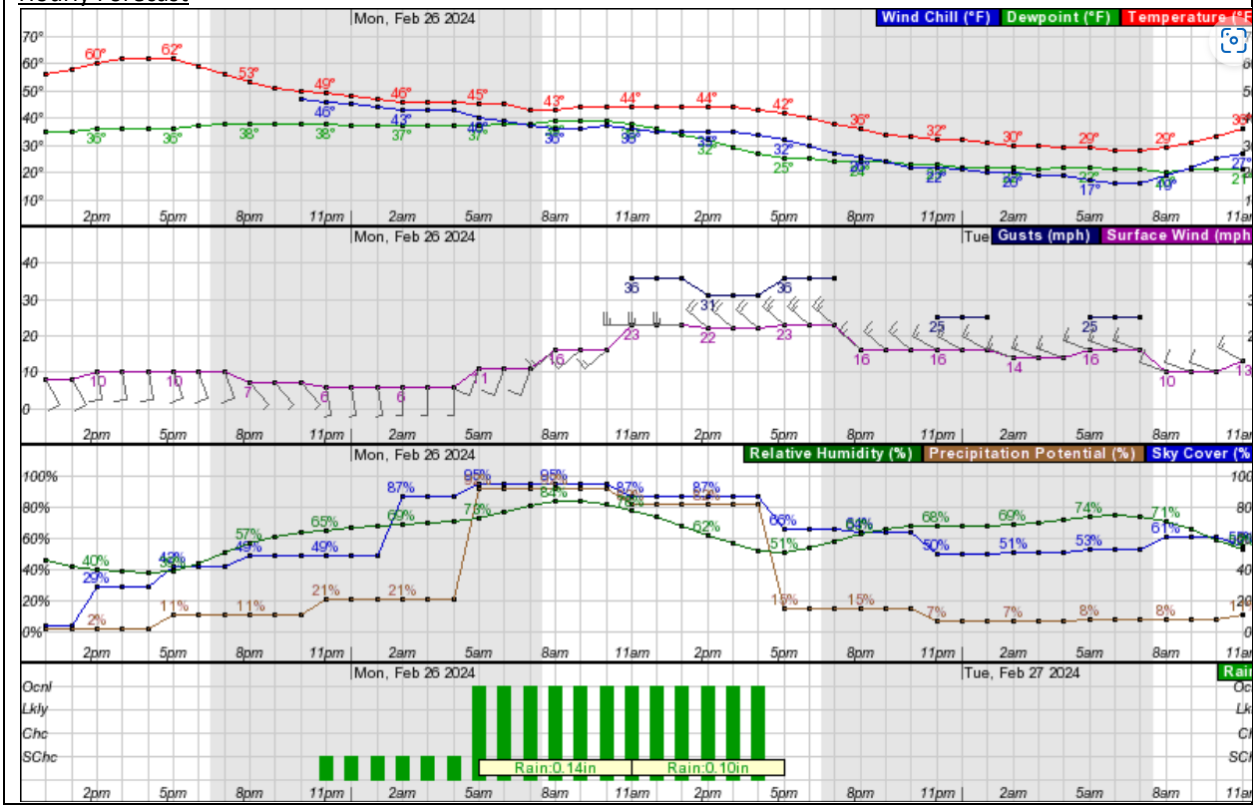
Strong **flow** aloft, 25-40 mph at ~5kft **MSL** and 45-60 mph at ~10kft **MSL**, and a tightening surface pressure **gradient** will translate to gusty winds across the region. Elevated and open terrain will see the strongest winds as **flow** aloft mixes to the surface. This includes Harney and Malheur counties in Oregon and areas outside of the lower Snake Plain in SW Idaho. A high Wind **Watch** remains in place across southern and western zones as forecast speeds are solid Advisory and possible **Warning** magnitude. This is especially the case for areas closer to the NV border. The lower Snake Plain will see winds ramp up with the frontal passage Monday afternoon and Advisory winds are still in play.

Precipitation will shut off quickly behind the **front** Monday afternoon/evening as snow levels drop to valley floors. Sites below 4000 feet will **likely** see precipitation end as rain. In the Snake Plain the best chance to see a change to snow will be east of Mountain Home, and more so in the western Magic Valley where minor accumulations are forecast. Snow showers will continue in the mountains Monday night with light additional accumulation.

.LONG TERM...Tuesday through Saturday...As quickly as the **trough** entered the region, it`s on the way out on Tuesday. Lower elevations dry out while **instability** supports continuation of showers across the mountains. Any accumulation will be light. By Wednesday, westerly **flow** off the Pacific will begin to moderate the **air mass**, raising snow levels to 4500-5500 feet. Mountains will continue to see precipitation through the end of the week as a **deepening** **trough** along the **Pac** NW coast maintains a steady

and moist **flow** aloft. Lower elevations will see precipitation chances increase again toward the end of the week as the **trough** shifts inland. After Thursday, snow levels will gradually lower in response to the advancing **trough**.

Hourly Forecast



Storm Event QA/QC Checklist – Phase I

STORM DATE 2/26/24

A. Event and Data Completeness	Yes	No	N/A	Notes
1. Field data sheets filled out completely and clearly	X			
2. Field parameters reviewed, and any problems/issues addressed	X			
3. All samples collected as specified	X			
4. All samples delivered to lab promptly (review chain of custody rpts)	X			See ~~Daylight~~ ST analytical reports for noted sample container temps.
5. Inconsistencies/clarifications discussed with sampling team member			X	
6. All analytical reports from lab received	X			Reissued to report ammonia in mg/L

B. Validation and Verification Methods	Yes	No	N/A	Notes
1. Outliers and unexpected values discussed with lab			X	
2. Appropriate analytical methods used	X			Verified correct ammonia method + units
3. All lab QA samples were within method acceptance criteria	X			
4. All samples reviewed and data qualifiers assigned if needed	X			
5. Data quality objective achieved	X			

C. Specific Storm and Sample QA/QC Criteria	Lucky	Whitewater	Main	Americana	AS_6	Program Criteria	Met	Qualify	Reject
1. Antecedent dry period (inches in previous 72-hours)	0.00	0.00	0.00	0.00	0.00	< 0.11" in 72 hrs	X		
2. Precipitation (inches)	0.13	0.21	0.18	0.18/0.18	0.18/0.18	> 0.10"	X		
3. Sampled amount (% of total run-off)	90%	87%	95%	83%	89%	>= 75% or >= 6 hrs: no qualifier >= 50% and <75%: qualify < 50%: reject	X		
4. Composite sample duration (hours)	6.5	9.5	17.0	7.0	6.0				
4. Ecoli sample holding time (hours)	3.0	4.0	4.0	3.5	3.0	<=8 hrs: no qualifier >8 and <=16 hrs.: qualify >16 hrs.: reject	X		
5. Filtering of samples for dissolved parameter analysis (hours)	16.0	12.5	16.5	16.0	16.0	<= 24 hrs: no qualifier > 24 hrs.: reject	X		

D. Notes

Reviewed by Hemm Turner **Date** 4/11/24

Approved by Monica Love **Date** 4/11/24

Storm Runoff Estimates and Trigger Volumes

Step 1. Enter runoff coefficients in yellow cells.
Step 2. Enter expected precipitation depth (in) in blue cell.
Step 3. Read trigger volumes (**bold**) in green cells.

Expected Precipitation Depth = 0.11
Aliquots per Sample = 17

Site	Area (ac)	Using RC calculated from flow data		
		RC	Expected Vol (ft^3)	Trigger Vol (ft^3)
Lucky	105	0.157	6582.5	**387**
Whitewater	498	0.069	13621.3	**801**
Main	79	0.246	7760.0	**456**
Main Alt	60	0.200	4791.6	**282**
Americana	875	0.144	50311.8	**2960**
AS_6	204	0.046	3747.0	**220**
State	34	0.160	2172.2	**128**

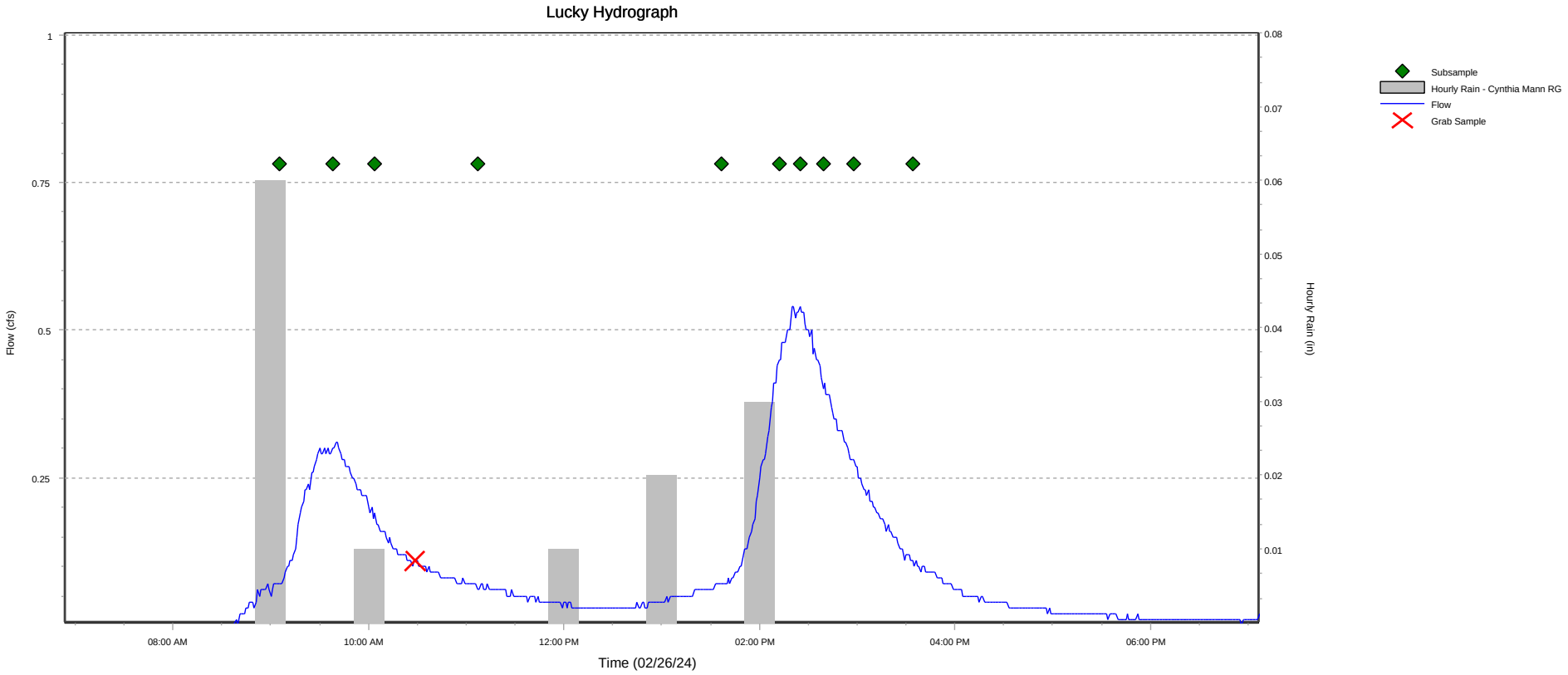
Notes:

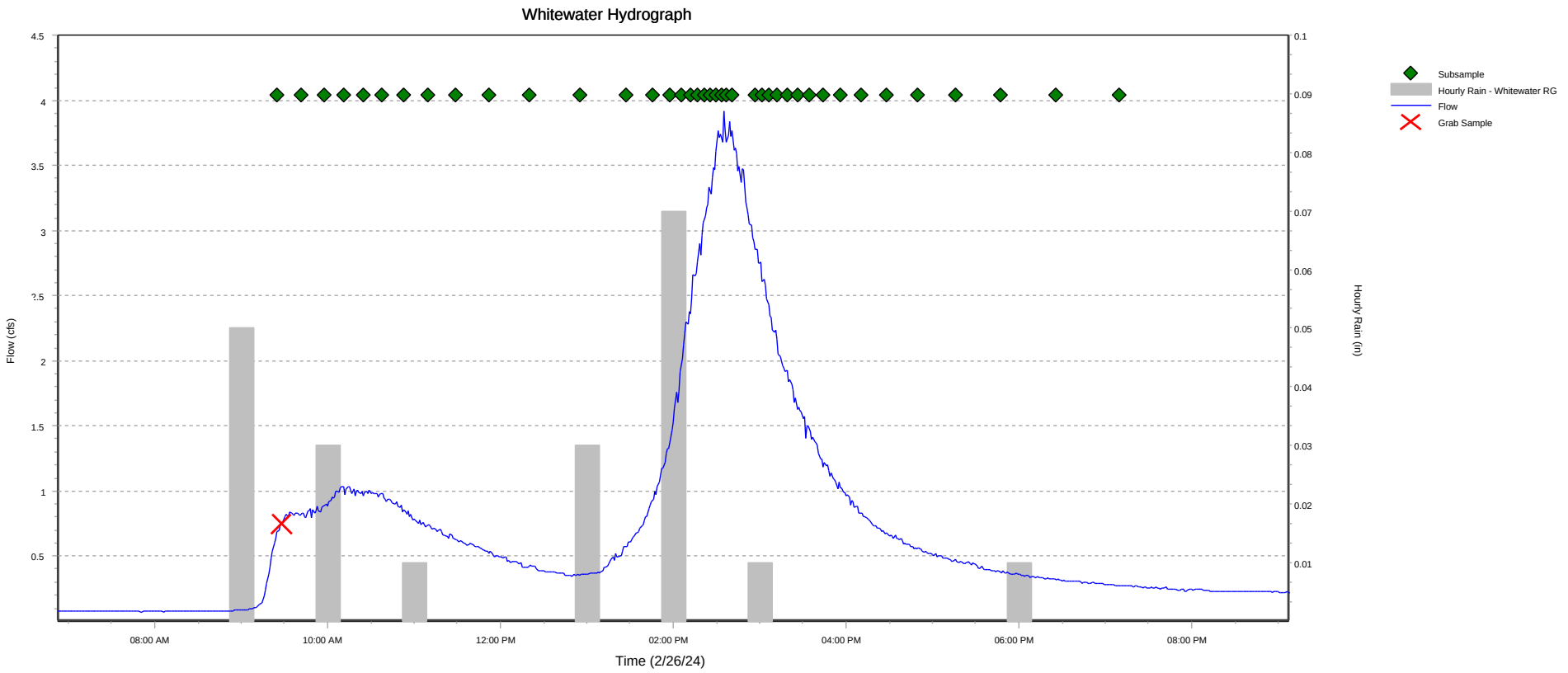
Calculated RC = Average (precip (ft) / [volume (ft^3) x area (ft^2)])

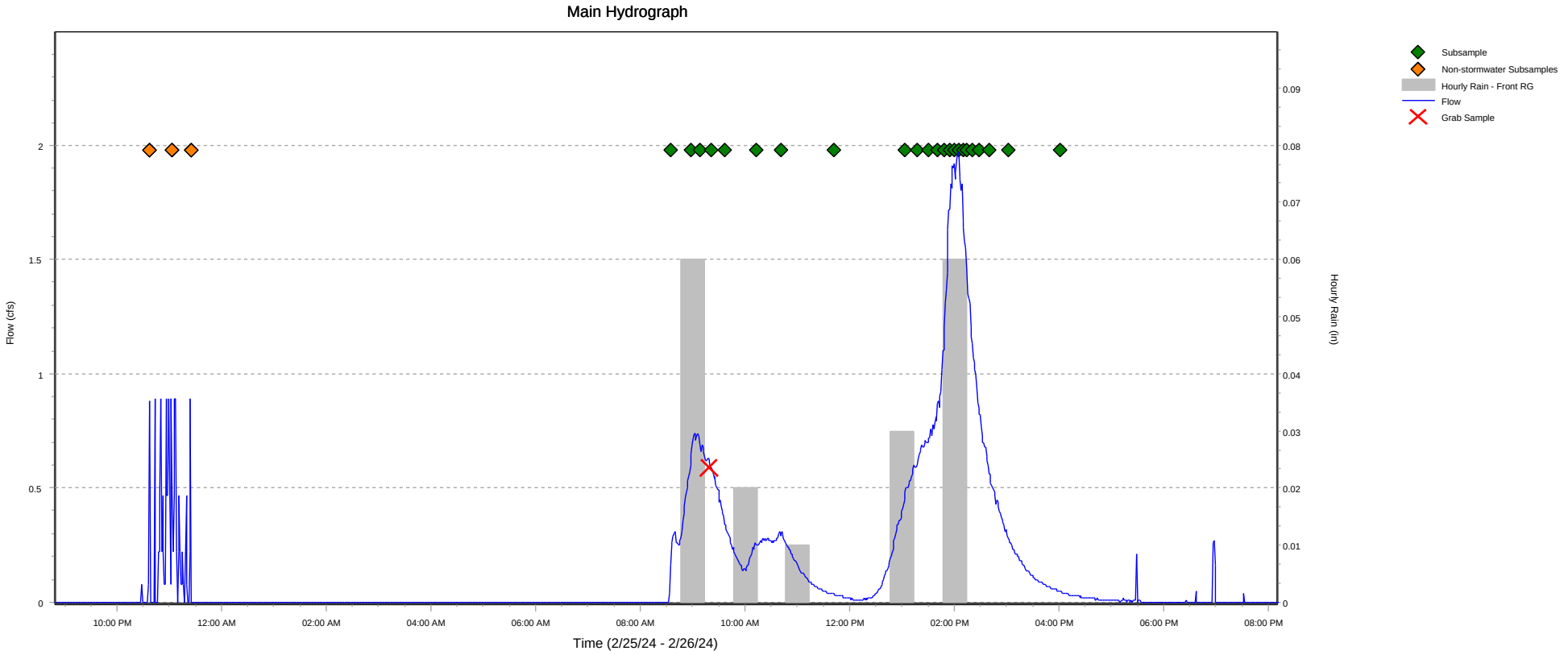
Where precip (ft) is the measured amount from local rain guage, and volume (ft^3) is the measured discharge, and area (ft^2) is the watershed area

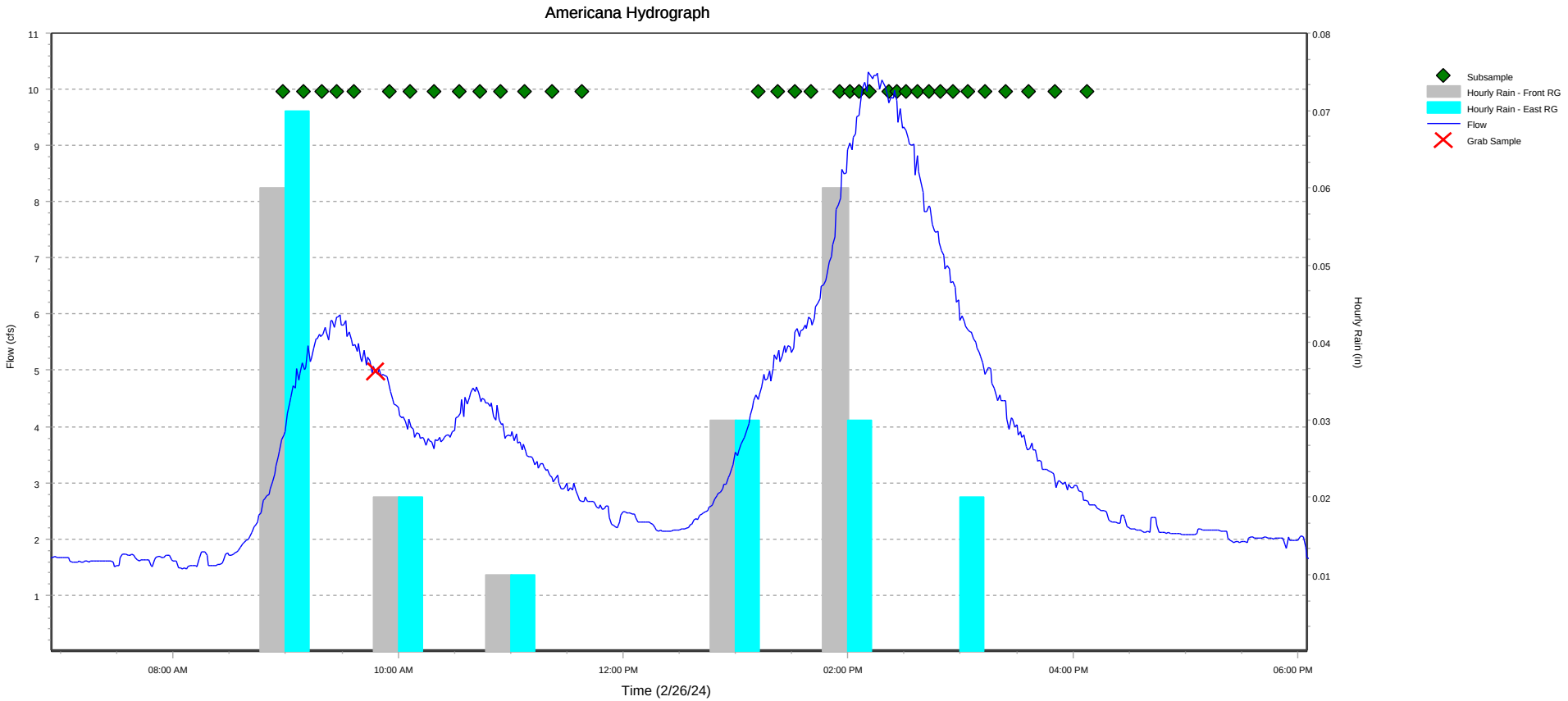
Expected volume (ft^3) = RC x expected precip (ft) x area (ft^2)

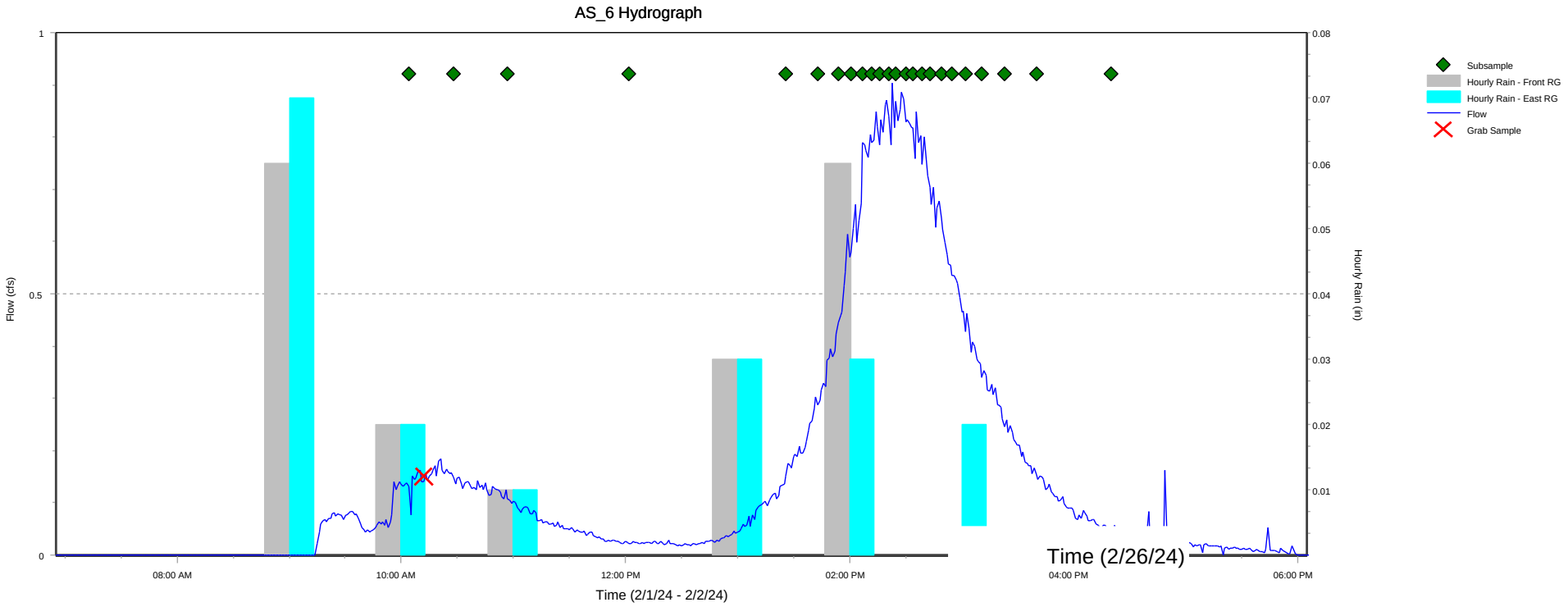
Attachment B: Storm Event Hydrographs


Lucky Hydrograph
Flow (cfs)
Hourly Rain (in)
Time (02/26/24)
1
0.75
0.5
0.25
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
08:00 AM
10:00 AM
12:00 PM
02:00 PM
04:00 PM
06:00 PM
Subsample
Hourly Rain - Cynthia Mann RG
Flow
Grab Sample


Whitewater Hydrograph
Flow (cfs)
Hourly Rain (in)
Time (2/26/24)
08:00 AM
10:00 AM
12:00 PM
02:00 PM
04:00 PM
06:00 PM
08:00 PM
Subsample
Hourly Rain - Whitewater RG
Flow
Grab Sample


Main Hydrograph
Subsample
Non-stormwater Subsamples
Hourly Rain - Front RG
Flow
Grab Sample
Flow (cfs)
Hourly Rain (in)
0
0.5
1
1.5
2
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
10:00 PM
12:00 AM
02:00 AM
04:00 AM
06:00 AM
08:00 AM
10:00 AM
12:00 PM
02:00 PM
04:00 PM
06:00 PM
08:00 PM
Time (2/25/24 - 2/26/24)


Americana Hydrograph
Flow (cfs)
Hourly Rain (in)
Time (2/26/24)
08:00 AM
10:00 AM
12:00 PM
02:00 PM
04:00 PM
06:00 PM
Subsample
Hourly Rain - Front RG
Hourly Rain - East RG
Flow
Grab Sample


AS_6 Hydrograph
Flow (cfs)
Hourly Rain (in)
1
0.5
0
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
08:00 AM
10:00 AM
12:00 PM
02:00 PM
04:00 PM
06:00 PM
Time (2/1/24 - 2/2/24)
Time (2/26/24)
Subsample
Hourly Rain - Front RG
Hourly Rain - East RG
Flow
Grab Sample

Attachment C: Field Forms

Grab Sample Data Form

STATION: Lucky

Personnel: S.T. PB **Date/Time On-Site:** 2/26/24 9:57

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
10:02	3.72	89.21 GPM	0.55	12.9		

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	240226-03 -WG	2/26/24	10:17	☒
Field Duplicate *E.Coli*	-101			☐
Field Blank *E.Coli*	-001			☐

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP07	10:12	4.75	9.89	8.27	125.9

Sampler Current Status	
First Subsample Date/Time	2/26/24 9:05
Last Subsample Date/Time	2/26/24 10:04
# of Subsamples taken	3

Comments: Flow reading in GPM instead of cfs.

Revised 210924 TL

Grab Sample Data Form

STATION: Whitewater

Personnel: ST, PB

Date/Time On-Site: 9:10 2/26/24

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
9:15	2.51	0.16	0.50	—		

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	240226-11 -WG	2/26/24	9:28	☑
Field Duplicate *E.Coli*	240226-11 -101	2/26/24	~~9:37~~ 12:00	☑
Field Blank *E.Coli*	240226-11 -001	2/26/24	~~9:35~~ 12:00	☐

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP07	9:42	5.97	10.88	7.74	749.2

Sampler Current Status	
First Subsample Date/Time	9:23
Last Subsample Date/Time	9:40
# of Subsamples taken	2

Comments:

~~Field duplicate + blank dumped. Mains' grab QC was successful.~~ ST

Whitewater - alternate QC site. Main grab QC was successful, so whitewater's QC discarded and not submitted to the lab. -ST

Revised 210924 TL

Grab Sample Data Form

STATION: MAIN

Personnel: KC, LS, MV **Date/Time On-Site:** 9:12 AM 2/26/24

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
9:12	5.10	311.35	1.75	12.9	—	—

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	240226-12 -WG	240226	0919	☒
Field Duplicate *E.Coli*	240226-12 -101	240226	0922	☒
Field Blank *E.Coli*	240226-12 -001	240226	0925	☒

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP11	9:31	9.53	9.79	7.94	165.88

Sampler Current Status	
First Subsample Date/Time	22:38 2/25
Last Subsample Date/Time	9:09 2/26
# of Subsamples taken	6

Comments:

Revised 210924 TL

Grab Sample Data Form

STATION: AMERICANA

Personnel: KE, LS, MV **Date/Time On-Site:** 9:42 2/26/24

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
9:42	9.19	5.24	3.130	12.09	—	—

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	24022614 -WG	240226	0948	☐
Field Duplicate *E.Coli*	-101			☐
Field Blank *E.Coli*	-001			☐

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP11	0951	8.74	10.54	7.53	470.96

Sampler Current Status	
First Subsample Date/Time	8:57 ON 2/26
Last Subsample Date/Time	9:35 - 2/26
# of Subsamples taken	5

Comments:

Revised 210924 TL

Grab Sample Data Form

STATION: AS-6

Personnel: KE, LS, MV **Date/Time On-Site:** 10:05 2/26/24

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
10:05	2.962	0.15	0.71	12.2	—	—

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	240226-206 -WG	~~2/27~~ 2/26/24	1017	☒
Field Duplicate *E.Coli*	-101			☐
Field Blank *E.Coli*	-001			☐

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP11	1015	6.49	~~8~~ 9.39	7.44	124.28

Sampler Current Status	
First Subsample Date/Time	10:04 - 2/26/24
Last Subsample Date/Time	10:04 - 2/26/24
# of Subsamples taken	1

Comments:

Revised 210924 TL

Set Up/ Shut Down Form – HACH (Lucky, Main, AS_6)

TATION: Lucky

SET UP

Personnel: KC, ST

Date/Time On-Site: 2/25/24 10:15

offsite at 10:40

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
10:22	1.72	0.00	0.00	12.9

Enable Condition or Velocity Cutoff:	2.72
Deadband:	1.00
Trigger Volume:	2895

- [x] Install batteries on flowmeter and sampler
- [x] Perform decon. cycle
- [x] Install 15L sample bottle, with ice
- [x] Leave bottle lid at site, in a clean re-sealable plastic bag
- [x] Verify all cable and tubing connections
- [x] Check date and time on flowmeter and sampler
- [x] Set flowmeter program and sampler program parameters
- [x] Set logging interval to 1 minute
- [x] Start flowmeter program and sampler program
- [x] Verify running

Comments:

SHUT DOWN

Personnel: ST

Date/Time On-Site: 2/27/24 1253

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
12:57	1.72	1.72	0.02		12.6
Downloaded to:		ST flashdrive			

If flow monitoring is complete:	If continuing to monitor flow:
[x] Halt program on flowmeter	☐ Replace flowmeter battery
[x] Download flowmeter data	☐ Reset logging interval to 15 minutes
[x] Remove flowmeter battery	☐ Change velocity cutoff to 0.02 fps
	☐ Start program
	☐ Verify running

Comments:

Composite Sample Collection

STATION: Lucky
Personnel: ST, PD

Bottle 1 **of** 1
Date/Time On-Site: 10:20 3/26/24

☒ Halt sampler program		
☒ Put lid on sample bottle; label sample bottle		
Sample ID:	240226-03	-WC
Approx Sample Volume (mL):	5000 ml	
Clarity (ex. Clear, Cloudy, Silty):	Clear	
Color (ex. Clear, Gray, Tan, Brown, Black):	Tan	
QA/QC Sample ID:	-103	(Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	3/26 9:05	Success	13		
2	3/26 9:38		14		
3	3/26 10:04		15		
4	1107		16		
5	1337		17		
6	1412		18		
7	1425		19		
8	1439		20		
9	1458		21		
10	1534		22		
11			23		
12			24		

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☒ Power off sampler, if separate from flowmeter ☒ Keep flowmeter running ☒ Add ice to sample transport cooler	☐ Keep flowmeter running ☐ Install new 15L bottle, add ice ☐ Restart program from beginning **Date/Time Restarted:** _____ ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Set Up/ Shut Down Form – ISCO (Whitewater, Americana, State)

STATION: Whitewater

SET UP

Personnel: ST, KC

Date/Time On-Site: 2/25/24 10:52

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
10:55	1.86	0.04	0.17	—

Enable Condition:	3.05
Hysteresis:	1.00
Flow Pulse Interval:	800 cf

On-Site
- [x] Replace flowmeter battery, install sampler battery
- [x] Perform decon. cycle
- [x] Install 15L sample bottle, with ice
- [x] Leave bottle lid at site, in a clean re-sealable plastic bag
- [x] Set sampler program parameters
- [x] Check date/time on sampler
- [x] Verify all cable and tubing connections
- [x] Verify sampler program is running

Flowlink (Refer to PG 411 or PG 412, if needed)
- [ ] Direct or Remote; Date/time Did not download.
- [x] Retrieve data and review recent flow history
- [x] Change Wireless Power Control to Storm Event
- [x] Change Data Storage Rates to 1 minute for Level, Velocity, Total Flow, and Flow Rate
- [x] Enable Sampler: On Trigger, and set Sampler Enable equation
- [x] Set Sampler Pacing to Flow Paced, and set trigger volume

Comments: flowmeter time was 7 minutes off. Time corrected. Did not download data. Reviewed data on flowmeter screen.

SHUT DOWN

Personnel: ST

Date/Time On-Site: 2/27/24 1336

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1336	2.39	0.13	0.41	—
	Downloaded to:	Flowlink		

On-Site
- [x] Replace flowmeter battery
- [x] Remove battery from sampler

Flowlink (Refer to Flowlink Instructions, if needed)
- [x] Direct or Remote; Date/time 2/27 @ 10:25
- [x] Retrieve data
- [x] Change Wireless Power Control to Dry Weather
- [x] Change Data Storage Rates to 15 minutes for Level, Velocity, Total Flow, and Flow Rate
- [x] Enable Sampler: Never

Comments:

Composite Sample Collection

STATION: Whitewater
Personnel: KC, SJ

Bottle 1 **of** 2
Date/Time On-Site: 2/26/24 1454

☐ Halt sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	240226 - 11 -WC
Approx Sample Volume (mL):	14000mL
Clarity (ex. Clear, Cloudy, Silty):	Silty
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	2/26 0923	Success	13	2/26 1325	Success
2	0940		14	1344	
3	0956		15	1356	
4	1010		16	1404	
5	1023		17	1411	
6	1037		18	1416	
7	1051		19	1420	
8	1108		20	1425	
9	1128		21	1428	
10	1150		22	1432	
11	1219		23	1436	
12	1254		24	1439	

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☒ Keep flowmeter running
☐ Keep flowmeter running	☒ Install new 15L bottle; add ice
☐ Add ice to sample transport cooler	☒ Restart program from beginning
	Date/Time Restarted: 2/26 1456
	☒ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: White Water x **Bottle** 2 **of** 2

Personnel: VC, ST **Date/Time On-Site:** _____

☐ Halt sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	240226-11 -WC
Approx Sample Volume (mL):	9500 mL
Clarity (ex. Clear, Cloudy, Silty):	Silty
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	2/26/24 1455	Success	13	2/26/24 1715	Success
2	1500		14	1746	
3	1505		15	1824	
4	1511		16	1908	
5	1517		17		
6	1525		18		
7	1533		19		
8	1543		20		
9	1555		21		
10	1609		22		
11	1627		23		
12	1648		24		

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☒ Power off sampler, if separate from flowmeter ☒ Keep flowmeter running ☒ Add ice to sample transport cooler	☐ Keep flowmeter running ☐ Install new 15L bottle; add ice ☐ Restart program from beginning **Date/Time Restarted:** _____ ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Set Up/ Shut Down Form – HACH (Lucky, Main, AS_6)

STATION: Main

SET UP

Personnel: KC, ST

Date/Time On-Site: 2/25/24 1133

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1136	0.87	0.00	0.00	12.8

Enable Condition or Velocity Cutoff:	0.87
Deadband:	1.00
Trigger Volume:	3411

- [x] Install batteries on flowmeter and sampler
- [x] Perform decon. cycle
- [x] Install 15L sample bottle, with ice
- [x] Leave bottle lid at site, in a clean re-sealable plastic bag
- [x] Verify all cable and tubing connections
- [x] Check date and time on flowmeter and sampler
- [x] Set flowmeter program and sampler program parameters
- [x] Set logging interval to 1 minute
- [x] Start flowmeter program and sampler program
- [x] Verify running

Comments:

SHUT DOWN

Personnel: ST

Date/Time On-Site: 2/27/24 1547

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
1547	0.85	0.00	0.00		12.4

Downloaded to:	Steven's USB

If flow monitoring is complete:	**If continuing to monitor flow:**
☒ Halt program on flowmeter	☐ Replace flowmeter battery
☒ Download flowmeter data	☐ Reset logging interval to 15 minutes
☑ Remove flowmeter battery	☐ Change velocity cutoff to 0.02 fps
	☐ Start program
	☐ Verify running

Comments:

Composite Sample Collection

STATION: Main **Bottle** 1 **of** 2

Personnel: KC, ST **Date/Time On-Site:** 2/26/24 1440

☒ Halt sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	240226-2012 -WC
Approx Sample Volume (mL):	13250 mL
Clarity (ex. Clear, Cloudy, Silty):	Silty
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	2/25/24 2238	Success	13	2/26/24 1318	Success
2	2304		14	1330	
3	2326		15	1341	
4	2/26/24 0835		16	1349	
5	0858		17	1355	
6	0909		18	1400	
7	0921		19	1405	
8	0937		20	1410	
9	1013		21	1415	
10	1042		22	1421	
11	1142		23	1429	
12	1304		24	1440	

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☒ Keep flowmeter running
☐ Keep flowmeter running	☒ Install new 15L bottle, add ice
☐ Add ice to sample transport cooler	☒ Restart program from beginning
	Date/Time Restarted: 2/26/24 1443
	☒ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: Main **Bottle** 2 **of** 2

Personnel: KC, ST **Date/Time On-Site:** _____

☐ Halt sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	240226-12 -WC
Approx Sample Volume (mL):	800 mL
Clarity (ex. Clear, Cloudy, Silty):	Clear
Color (ex. Clear, Gray, Tan, Brown, Black):	tan
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	2/26/24 1502	Success	13		
2	↓ 1601	↓	14		
3			15		
4			16		
5			17		
6			18		
7			19		
8			20		
9			21		
10			22		
11			23		
12			24		

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☒ Power off sampler, if separate from flowmeter ☒ Keep flowmeter running ☒ Add ice to sample transport cooler	☐ Keep flowmeter running ☐ Install new 15L bottle; add ice ☐ Restart program from beginning **Date/Time Restarted:** _____ ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

Revised 220727 TL

Set Up/ Shut Down Form – ISCO (Whitewater, Americana, State)

STATION: Americana

SET UP

Personnel: KC, ST

Date/Time On-Site: 2/25/24 1217

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1212	5.53	~~2.~~ 1.68	2.061	12.41

Enable Condition:	~~to.53~~ 7.59
Hysteresis:	1.00
Flow Pulse Interval:	2960 cf

On-Site

- ☒ Replace flowmeter battery, install sampler battery
- ☒ Perform decon. cycle
- ☒ Install 15L sample bottle, with ice
- ☒ Leave bottle lid at site, in a clean re-sealable plastic bag
- ☒ Set sampler program parameters
- ☒ Check date/time on sampler
- ☒ Verify all cable and tubing connections
- ☒ Verify sampler program is running

Flowlink (Refer to PG 411 or PG 412, if needed)

- ☒ Direct or Remote; Date/time Did not need to download
- ☒ Retrieve data and review recent flow history
- ☒ Change Wireless Power Control to Storm Event
- ☒ Change Data Storage Rates to 1 minute for Level, Velocity, Total Flow, and Flow Rate
- ☒ Enable Sampler: On Trigger, and set Sampler Enable equation
- ☒ Set Sampler Pacing to Flow Paced, and set trigger volume

Comments: Data not downloaded. Recent flow history was viewed on the flowmeter screen.

SHUT DOWN

Personnel: ST

Date/Time On-Site: 2/27/24 1502

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
15:03	5.56	1.80	2.217	11.90
	Downloaded to:	Flowlink		

On-Site

- ☒ Replace flowmeter battery
- ☒ Remove battery from sampler

Flowlink (Refer to Flowlink Instructions, if needed)

- ☒ Direct or Remote; Date/time 2/27 10:21
- ☒ Retrieve data
- ☒ Change Wireless Power Control to Dry Weather
- ☒ Change Data Storage Rates to 15 minutes for Level, Velocity, Total Flow, and Flow Rate
- ☒ Enable Sampler: Never

Comments:

Composite Sample Collection

STATION: Americana **Bottle** 1 **of** 2

Personnel: ST, KC **Date/Time On-Site:** 2/26/24 1415

☐ Halt sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	240226-14 -WC
Approx Sample Volume (mL):	12,500 mL
Clarity (ex. Clear, Cloudy, Silty):	Silty
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	2/26/24 0857	Success	13	2/26/24 1106	Success
2	0908		14	1121	
3	0918		15	1137	
4	0926		16	1321 +150	
5	0935		17	1321	
6	0944	Sample skipped	18	1330	
7	0954	Success	19	1339	
8	1005		20	1347	Skipped
9	1018		21	1354	Success
10	1031		22	1400	
11	1042		23	1405	
12	1053		24	1410	

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☒ Keep flowmeter running
☐ Keep flowmeter running	☒ Install new 15L bottle; add ice
☐ Add ice to sample transport cooler	☒ Restart program from beginning
	Date/Time Restarted: 2/26 1418
	☒ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: Americana **Bottle** 2 **of** 2

Personnel: VC, ST **Date/Time On-Site:** 2/26/24 1805

☑ Halt sampler program	
☑ Put lid on sample bottle; label sample bottle	
Sample ID:	240226 - 14 -WC
Approx Sample Volume (mL):	8,000 mL
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Tan
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	2/26/24 1420	Success	13	2/26/24 1606	Success
2	1425		14		
3	1430		15		
4	1436		16		
5	1442		17		
6	1448		18		
7	1455		19		
8	1503		20		
9	1512		21		
10	1523		22		
11	1535		23		
12	1549		24		

Comments:

If sampling is complete:
- ☑ Power off sampler, if separate from flowmeter
- ☑ Keep flowmeter running
- ☑ Add ice to sample transport cooler

If continuing sampling (sample bottle change-out):
- ☐ Keep flowmeter running
- ☐ Install new 15L bottle; add ice
- ☐ Restart program from beginning

Date/Time Restarted: _____

- ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Set Up/ Shut Down Form – HACH (Lucky, Main, AS_6)

STATION: AS-6

SET UP

Personnel: KC, ST

Date/Time On-Site: 2/25/24 1253

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1255	0.00	0.00	0.00	11.9 12.4

Enable Condition or Velocity Cutoff:	0.02
Deadband:	
Trigger Volume:	221

- ☒ Install batteries on flowmeter and sampler
- ☒ Perform decon. cycle
- ☒ Install 15L sample bottle, with ice
- ☒ Leave bottle lid at site, in a clean re-sealable plastic bag
- ☒ Verify all cable and tubing connections
- ☒ Check date and time on flowmeter and sampler
- ☒ Set flowmeter program and sampler program parameters
- ☒ Set logging interval to 1 minute
- ☒ Start flowmeter program and sampler program
- ☒ Verify running

Comments:

SHUT DOWN

Personnel: ST

Date/Time On-Site: 2/27/24 1352

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
1353	0.000	0.00	0.00	5448.9	12.4
Downloaded to:		Rugged - S drive			
		New data			

If flow monitoring is complete:	**If continuing to monitor flow:**
☒ Halt program on flowmeter	☐ Replace flowmeter battery
☒ Download flowmeter data	☐ Reset logging interval to 15 minutes
☒ Remove flowmeter battery	☐ Change velocity cutoff to 0.02 fps
	☐ Start program
	☐ Verify running

Comments:

Composite Sample Collection

STATION: AS-6 **Bottle** 1 **of** 2

Personnel: KC, ST **Date/Time On-Site:** 2/26/24 1553

☐ Halt sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	240226-206 -WC
Approx Sample Volume (mL):	12,500mL
Clarity (ex. Clear, Cloudy, Silty):	Silty
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	2/26/24 1004	Success	13	2/26/24 1425	Success
2	1028		14	1430	
3	1057		15	1434	
4	1202		16	1439	
5	1326		17	1443	
6	1343		18	1449	
7	1354		19	1455	
8	1401		20	~~1502~~ ~~1540~~	
9	1407		21	1511	
10	1412		22	1523	
11	1416		23	1540	
12	1421		24		

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☒ Keep flowmeter running
☐ Keep flowmeter running	☒ Install new 15L bottle, add ice
☐ Add ice to sample transport cooler	☒ Restart program from beginning
	Date/Time Restarted: 2/26 4:07
	☑ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: AS-6 **Bottle** 2 **of** 2

Personnel: VC, ST **Date/Time On-Site:** 2/26/24 1853

☑ Halt sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	240226 – 206 -WC
Approx Sample Volume (mL):	400 mL
Clarity (ex. Clear, Cloudy, Silty):	Clear
Color (ex. Clear, Gray, Tan, Brown, Black):	Tan
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	2/26/24 1620	Success	13		
2			14		
3			15		
4			16		
5			17		
6			18		
7			19		
8			20		
9			21		
10			22		
11			23		
12			24		

Comments:

If sampling is complete:
- ☑ Power off sampler, if separate from flowmeter
- ☑ Keep flowmeter running
- ☑ Add ice to sample transport cooler

If continuing sampling (sample bottle change-out):
- ☐ Keep flowmeter running
- ☐ Install new 15L bottle; add ice
- ☐ Restart program from beginning

Date/Time Restarted: _____

- ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Attachment D: Storm Event Analytical Reports

Report Date: 03/08/2024 13:51

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00332-01	ACST1B	240226-03-WG	Water		02/26/2024	02/26/2024
AC00332-02	ACST1B	240226-11-WG	Water		02/26/2024	02/26/2024
AC00332-03	ACST1B	240226-12-WG	Water		02/26/2024	02/26/2024
AC00332-04	ACST1B	240226-12-101	Water		02/26/2024	02/26/2024
AC00332-05	ACST1B	240226-12-001	Water		02/26/2024	02/26/2024
AC00332-06	ACST1B	240226-14-WG	Water		02/26/2024	02/26/2024

Report Date: 03/08/2024 13:51

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240226-03-WG
Date/Time Collected:	02/26/2024 10:17		
Lab Number:	AC00332-01	Sample Collector:	S.T
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B240669	37.9	MPN/100 mL	1.0	1.0	IDEXX - Colilert	02/26/24 13:24	2/27/24 13:41	KMR	
Wet Chemistry										
Chlorine Screen	B240674	Absent				SM 4500-CL G-2000 mod	02/26/24	2/26/24 12:38	ALN	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 03/08/2024 13:51

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240226-11-WG
Date/Time Collected:	02/26/2024 09:28		
Lab Number:	AC00332-02	Sample Collector:	S.T
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B240669	38.3	MPN/100 mL	1.0	1.0	IDEXX - Colilert	02/26/24 13:24	2/27/24 13:41	KMR	
Wet Chemistry										
Chlorine Screen	B240674	Absent				SM 4500-CL G-2000 mod	02/26/24	2/26/24 12:38	ALN	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 03/08/2024 13:51

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240226-12-WG
Date/Time Collected:	02/26/2024 09:19		
Lab Number:	AC00332-03	Sample Collector:	L.S
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B240669	24.3	MPN/100 mL	1.0	1.0	IDEXX - Colilert	02/26/24 13:24	2/27/24 13:41	KMR	
Wet Chemistry										
Chlorine Screen	B240674	Absent				SM 4500-CL G-2000 mod	02/26/24	2/26/24 12:38	ALN	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 03/08/2024 13:51

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
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Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240226-12-101
Date/Time Collected:	02/26/2024 12:00		
Lab Number:	AC00332-04	Sample Collector:	L.S
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B240669	26.9	MPN/100 mL	1.0	1.0	IDEXX - Colilert	02/26/24 13:24	2/27/24 13:41	KMR	
Wet Chemistry										
Chlorine Screen	B240674	Absent				SM 4500-CL G-2000 mod	02/26/24	2/26/24 12:38	ALN	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 03/08/2024 13:51

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240226-12-001
Date/Time Collected:	02/26/2024 12:00		
Lab Number:	AC00332-05	Sample Collector:	L.S
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B240669	<1.0	MPN/100 mL	1.0	1.0	IDEXX - Colilert	02/26/24 13:24	2/27/24 13:41	KMR	U
Wet Chemistry										
Chlorine Screen	B240674	Absent				SM 4500-CL G-2000 mod	02/26/24	2/26/24 12:42	ALN	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 03/08/2024 13:51

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
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Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240226-14-WG
Date/Time Collected:	02/26/2024 09:48		
Lab Number:	AC00332-06	Sample Collector:	M.V
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B240669	125.9	MPN/100 mL	1.0	1.0	IDEXX - Colilert	02/26/24 13:24	2/27/24 13:41	KMR	
Wet Chemistry										
Chlorine Screen	B240674	Absent				SM 4500-CL G-2000 mod	02/26/24	2/26/24 12:42	ALN	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 03/08/2024 13:51

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Microbiology									
Batch: B240669									
Blank (B240669-BLK1)									
E. Coli	Absent						02/27/2024	KMR	
LCS (B240669-BS1)									
E. Coli				Present			02/27/2024	KMR	
Duplicate (B240669-DUP1)	Source ID: WB02977-06								
E. Coli					Pass	128	02/27/2024	KMR	
Duplicate (B240669-DUP2)	Source ID: AC00332-01								
E. Coli					Pass	128	02/27/2024	KMR	

Report Date: 03/08/2024 13:51

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Notes and Definitions

Item	Definition
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

for JFK

Janet Finegan-Kelly
Water Quality Laboratory Manager

Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Ada County Highway District

Attn: Steven Turner
3775 Adams Street
Garden City, Idaho 83714–6418
Tel. (208) 387–6269
Fax (208) 387–6391

Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Steven Turner, Paul Bomber, Kristen Christolm, Lindsey Sinnott, Mike Van Lydegraf

Lab# AC00332	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hq - EPA 245.2	E. Coli - IDEXX Colilert	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
-01	2/26/24		1017		240226-03-WG	ST	X	X											X						1
-02			0928		240226-11-WG	ST	X	X											X						1
-03			0919		240226-12-WG	LS	X	X											X						1
-04			1200		240226-12-101	LS	X	X											X						1
-05			1200		240226-12-001	LS	X	X											X						1
-06	↓		0948		240226-14-WG	LN	X	X											X						1

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
Kristen Christolm	2/26/24 1201	[signature] 2-26-24 1204	

AC00332

Report Date: 03/08/2024 13:51

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00333-01	ACST1B	240226-206-WG	Water		02/26/2024	02/26/2024

Report Date: 03/08/2024 13:51

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240226-206-WG
Date/Time Collected:	02/26/2024 10:12		
Lab Number:	AC00333-01	Sample Collector:	M.V
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B240669	53.7	MPN/100 mL	1.0	1.0	IDEXX - Colilert	02/26/24 13:24	2/27/24 13:41	KMR	
Wet Chemistry										
Chlorine Screen	B240674	Absent				SM 4500-CL G-2000 mod	02/26/24	2/26/24 12:42	ALN	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 03/08/2024 13:51

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Microbiology									
Batch: B240669									
Blank (B240669-BLK1)									
E. Coli	Absent						02/27/2024	KMR	
LCS (B240669-BS1)									
E. Coli				Present			02/27/2024	KMR	
Duplicate (B240669-DUP1)	Source ID: WB02977-06								
E. Coli					Pass	128	02/27/2024	KMR	
Duplicate (B240669-DUP2)	Source ID: AC00332-01								
E. Coli					Pass	128	02/27/2024	KMR	

Report Date: 03/08/2024 13:51

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Notes and Definitions

Item	Definition

No notes entered.

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

for JFK

Janet Finegan-Kelly
Water Quality Laboratory Manager

Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Ada County Highway District

Attn: Steven Turner
3775 Adams Street
Garden City, Idaho 83714–6418
Tel. (208) 387–6269
Fax (208) 387–6391

Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Kristen Clisham, Lindsey Smicot, Mike Van Lydegraf

Lab# ACO0333	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	E. Coli - IDEXX Colilert	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
-01	2/26/24		1012		240226-206-WG	MV	X	X												X					1

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
Kristen Clisham	2/26/24 1201	April R. Gift 2-26-24 1204	

ACO0333

Report Date: 04/11/2024 08:29

Revised Report

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00337-01	ACST1C	240226-03-WC	Water		02/26/2024	02/27/2024
Comments:	Container temp #1 - 4.8 C					
AC00337-02	ACST1C	240226-11-WC	Water		02/26/2024	02/27/2024
Comments:	Container temps: #1 - 6.4 C, #2 - 5.7 C					
AC00337-03	ACST1C	240226-12-WC	Water		02/26/2024	02/27/2024
Comments:	Container temps: #1 - 8.4 C, #2 - 7.2 C					
AC00337-04	ACST1C	240226-14-WC	Water		02/26/2024	02/27/2024
Comments:	Container temps: #1 - 7.4 C, #2 - 5.6 C					

Report Date: 04/11/2024 08:29

Revised Report

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1C	Location Description:	240226-03-WC
Date/Time Collected:	02/26/2024 09:05 - 02/26/2024 15:34		
Lab Number:	AC00337-01	Sample Collector:	S.T
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B240744	0.476	mg/L	0.0500	0.0500	SM 4500-NH3 D-2011	03/01/24	3/1/24 11:29	MEC	
BOD5	B240684	13.5	mg/L	2.00	2.00	SM 5210 B-2016	02/27/24	3/3/24 11:21	BAK	
Chloride	B240796	8.92	mg/L	0.0150	0.0150	EPA 300.0, Rev. 2.1 (1993)	03/06/24	3/6/24 22:25	ALN	
COD	B240680	60.0	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	02/27/24	2/27/24 10:52	MCB	
Nitrate-Nitrite, as N	B240718	0.969	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	02/29/24	2/29/24 12:18	LRF	
TKN	B240816	1.71	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	03/07/24	3/8/24 9:46	JAL	
Total Dissolved Solids	B240696	114	mg/L	20.0	20.0	SM 2540 C-2015	02/28/24	2/29/24 13:59	MEC	
Total Suspended Solids	B240708	18.1	mg/L	0.900	0.900	SM 2540 D-2015	02/28/24	2/28/24 10:21	RKT	
Turbidity	B240698	18.9	NTU	0.3	0.3	EPA 180.1, Rev. 2.0 (1993)	02/28/24	2/28/24 8:26	ASE	
Dissolved Wet Chemistry										
Orthophosphate, as P	B240685	0.124	mg/L	3.00E-3	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	02/27/24	2/27/24 10:06	RKT	
Total Metals										
Mercury	B240817	0.0150	ug/L	0.0100	0.0100	EPA 245.1	03/07/24	3/8/24 8:12	SAS	
Arsenic	B240750	2.6	ug/L	0.070	0.070	EPA 200.8	03/02/24	3/3/24 13:49	DMW	
Cadmium	B240750	0.031	ug/L	0.010	0.010	EPA 200.8	03/02/24	3/3/24 13:49	DMW	
Calcium	B240695	17.6	mg/L	0.0400	0.0400	EPA 200.7	02/28/24	3/1/24 11:18	AMO	
Lead	B240750	0.72	ug/L	0.010	0.010	EPA 200.8	03/02/24	3/3/24 13:49	DMW	
Magnesium	B240695	2250	ug/L	80.0	80.0	EPA 200.7	02/28/24	3/1/24 11:18	AMO	
Phosphorus as P	B240695	0.262	mg/L	0.0120	0.0120	EPA 200.7	02/28/24	3/1/24 11:18	AMO	
Hardness	B240695	53.2	mg/L	0.100	0.100	SM 2340 B-2011	02/28/24	3/1/24 11:18	AMO	
Dissolved Metals										
Cadmium	B241178	0.011	ug/L	0.010	0.010	EPA 200.8	04/04/24	4/4/24 16:04	DMW	
Copper	B240802	4.5	ug/L	0.15	0.15	EPA 200.8	03/08/24	3/8/24 16:28	DMW	
Lead	B241178	0.028	ug/L	9.00E-3	9.00E-3	EPA 200.8	04/04/24	4/4/24 16:04	DMW	
Zinc	B240802	13.5	ug/L	0.50	0.50	EPA 200.8	03/08/24	3/8/24 16:28	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 04/11/2024 08:29

Revised Report

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1C	Location Description:	240226-11-WC
Date/Time Collected:	02/26/2024 09:23 - 02/26/2024 19:08		
Lab Number:	AC00337-02	Sample Collector:	S.T
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B240744	0.596	mg/L	0.0500	0.0500	SM 4500-NH3 D-2011	03/01/24	3/1/24 11:45	MEC	
BOD5	B240684	12.6	mg/L	2.00	2.00	SM 5210 B-2016	02/27/24	3/3/24 11:12	BAK	
Chloride	B240796	44.4	mg/L	0.0150	0.0150	EPA 300.0, Rev. 2.1 (1993)	03/07/24	3/7/24 0:10	ALN	
COD	B240680	84.0	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	02/27/24	2/27/24 10:58	MCB	
Nitrate-Nitrite, as N	B240718	0.921	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	02/29/24	2/29/24 12:19	LRF	
TKN	B240816	2.43	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	03/07/24	3/8/24 9:47	JAL	
Total Dissolved Solids	B240696	182	mg/L	20.0	20.0	SM 2540 C-2015	02/28/24	2/29/24 14:00	MEC	
Total Suspended Solids	B240683	47.3	mg/L	0.900	0.900	SM 2540 D-2015	02/27/24	2/27/24 10:25	MEC	
Turbidity	B240698	52.3	NTU	1.2	0.3	EPA 180.1, Rev. 2.0 (1993)	02/28/24	2/28/24 9:53	ASE	D
Dissolved Wet Chemistry										
Orthophosphate, as P	B240685	0.174	mg/L	3.00E-3	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	02/27/24	2/27/24 10:07	RKT	
Total Metals										
Mercury	B240817	0.0151	ug/L	0.0100	0.0100	EPA 245.1	03/07/24	3/8/24 8:16	SAS	
Arsenic	B240750	2.6	ug/L	0.070	0.070	EPA 200.8	03/02/24	3/3/24 13:52	DMW	
Cadmium	B240750	0.062	ug/L	0.010	0.010	EPA 200.8	03/02/24	3/3/24 13:52	DMW	
Calcium	B240695	22.5	mg/L	0.0400	0.0400	EPA 200.7	02/28/24	3/1/24 11:24	AMO	
Lead	B240750	3.8	ug/L	0.010	0.010	EPA 200.8	03/02/24	3/3/24 13:52	DMW	
Magnesium	B240695	5260	ug/L	80.0	80.0	EPA 200.7	02/28/24	3/1/24 11:24	AMO	
Phosphorus as P	B240695	0.347	mg/L	0.0120	0.0120	EPA 200.7	02/28/24	3/1/24 11:24	AMO	
Hardness	B240695	77.8	mg/L	0.100	0.100	SM 2340 B-2011	02/28/24	3/1/24 11:24	AMO	
Dissolved Metals										
Cadmium	B241178	0.014	ug/L	0.010	0.010	EPA 200.8	04/04/24	4/4/24 16:07	DMW	
Copper	B240802	4.4	ug/L	0.15	0.15	EPA 200.8	03/08/24	3/8/24 16:30	DMW	
Lead	B241178	0.093	ug/L	9.00E-3	9.00E-3	EPA 200.8	04/04/24	4/4/24 16:07	DMW	
Zinc	B240802	24.5	ug/L	0.50	0.50	EPA 200.8	03/08/24	3/8/24 16:30	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 04/11/2024 08:29

Revised Report

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
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Analysis Report

Location:	ACST1C	Location Description:	240226-12-WC
Date/Time Collected:	02/25/2024 22:38 - 02/26/2024 16:01		
Lab Number:	AC00337-03	Sample Collector:	S.T
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B240744	0.829	mg/L	0.0500	0.0500	SM 4500-NH3 D-2011	03/01/24	3/1/24 11:37	MEC	
BOD5	B240684	13.9	mg/L	2.00	2.00	SM 5210 B-2016	02/27/24	3/3/24 11:07	BAK	
Chloride	B240796	17.0	mg/L	0.0150	0.0150	EPA 300.0, Rev. 2.1 (1993)	03/07/24	3/7/24 0:37	ALN	
COD	B240680	119	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	02/27/24	2/27/24 10:58	MCB	
Nitrate-Nitrite, as N	B240718	0.424	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	02/29/24	2/29/24 12:21	LRF	
TKN	B240816	1.96	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	03/07/24	3/8/24 9:48	JAL	
Total Dissolved Solids	B240696	85.2	mg/L	20.0	20.0	SM 2540 C-2015	02/28/24	2/29/24 14:01	MEC	
Total Suspended Solids	B240683	104	mg/L	0.900	0.900	SM 2540 D-2015	02/27/24	2/27/24 10:28	MEC	
Turbidity	B240698	94.7	NTU	1.2	0.3	EPA 180.1, Rev. 2.0 (1993)	02/28/24	2/28/24 9:08	ASE	D
Dissolved Wet Chemistry										
Orthophosphate, as P	B240685	0.0631	mg/L	3.00E-3	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	02/27/24	2/27/24 10:09	RKT	
Total Metals										
Mercury	B240817	0.0191	ug/L	0.0100	0.0100	EPA 245.1	03/07/24	3/8/24 8:51	SAS	
Arsenic	B240750	1.5	ug/L	0.070	0.070	EPA 200.8	03/02/24	3/3/24 13:54	DMW	
Cadmium	B240750	0.13	ug/L	0.010	0.010	EPA 200.8	03/02/24	3/3/24 13:54	DMW	
Calcium	B240695	7.84	mg/L	0.0400	0.0400	EPA 200.7	02/28/24	3/1/24 11:51	AMO	
Lead	B240750	6.1	ug/L	0.010	0.010	EPA 200.8	03/02/24	3/3/24 13:54	DMW	
Magnesium	B240695	2470	ug/L	80.0	80.0	EPA 200.7	02/28/24	3/1/24 11:51	AMO	
Phosphorus as P	B240695	0.231	mg/L	0.0120	0.0120	EPA 200.7	02/28/24	3/1/24 11:51	AMO	
Hardness	B240695	29.8	mg/L	0.100	0.100	SM 2340 B-2011	02/28/24	3/1/24 11:51	AMO	
Dissolved Metals										
Cadmium	B241178	0.032	ug/L	0.010	0.010	EPA 200.8	04/04/24	4/4/24 16:09	DMW	
Copper	B240802	5.6	ug/L	0.15	0.15	EPA 200.8	03/08/24	3/8/24 16:33	DMW	
Lead	B241178	0.12	ug/L	9.00E-3	9.00E-3	EPA 200.8	04/04/24	4/4/24 16:09	DMW	
Zinc	B240802	51.7	ug/L	0.50	0.50	EPA 200.8	03/08/24	3/8/24 16:33	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 04/11/2024 08:29

Revised Report

Boise City Public Works
Water Quality Laboratory
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Analysis Report

Location:	ACST1C	Location Description:	240226-14-WC
Date/Time Collected:	02/26/2024 08:57 - 02/26/2024 16:06		
Lab Number:	AC00337-04	Sample Collector:	S.T
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B240744	0.496	mg/L	0.0500	0.0500	SM 4500-NH3 D-2011	03/01/24	3/1/24 11:39	MEC	
BOD5	B240684	12.6	mg/L	2.00	2.00	SM 5210 B-2016	02/27/24	3/3/24 11:01	BAK	
Chloride	B240796	56.1	mg/L	0.0150	0.0150	EPA 300.0, Rev. 2.1 (1993)	03/07/24	3/7/24 1:03	ALN	
COD	B240680	85.0	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	02/27/24	2/27/24 10:58	MCB	
Nitrate-Nitrite, as N	B240718	0.940	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	02/29/24	2/29/24 12:22	LRF	
TKN	B240816	1.47	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	03/07/24	3/8/24 9:49	JAL	
Total Dissolved Solids	B240696	214	mg/L	20.0	20.0	SM 2540 C-2015	02/28/24	2/29/24 14:03	MEC	
Total Suspended Solids	B240683	54.3	mg/L	0.900	0.900	SM 2540 D-2015	02/27/24	2/27/24 11:21	MEC	
Turbidity	B240698	51.1	NTU	1.2	0.3	EPA 180.1, Rev. 2.0 (1993)	02/28/24	2/28/24 10:00	ASE	D
Dissolved Wet Chemistry										
Orthophosphate, as P	B240685	0.106	mg/L	3.00E-3	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	02/27/24	2/27/24 10:10	RKT	
Total Metals										
Mercury	B240817	0.0148	ug/L	0.0100	0.0100	EPA 245.1	03/07/24	3/8/24 8:54	SAS	
Arsenic	B240750	3.3	ug/L	0.070	0.070	EPA 200.8	03/02/24	3/3/24 13:57	DMW	
Cadmium	B240750	0.097	ug/L	0.010	0.010	EPA 200.8	03/02/24	3/3/24 13:57	DMW	
Calcium	B240695	31.4	mg/L	0.0400	0.0400	EPA 200.7	02/28/24	3/1/24 11:57	AMO	
Lead	B240750	3.9	ug/L	0.010	0.010	EPA 200.8	03/02/24	3/3/24 13:57	DMW	
Magnesium	B240695	5710	ug/L	80.0	80.0	EPA 200.7	02/28/24	3/1/24 11:57	AMO	
Phosphorus as P	B240695	0.276	mg/L	0.0120	0.0120	EPA 200.7	02/28/24	3/1/24 11:57	AMO	
Hardness	B240695	102	mg/L	0.100	0.100	SM 2340 B-2011	02/28/24	3/1/24 11:57	AMO	
Dissolved Metals										
Cadmium	B241178	0.021	ug/L	0.010	0.010	EPA 200.8	04/04/24	4/4/24 16:12	DMW	
Copper	B240802	4.0	ug/L	0.15	0.15	EPA 200.8	03/08/24	3/8/24 16:43	DMW	
Lead	B241178	0.063	ug/L	9.00E-3	9.00E-3	EPA 200.8	04/04/24	4/4/24 16:12	DMW	
Zinc	B240802	24.3	ug/L	0.50	0.50	EPA 200.8	03/08/24	3/8/24 16:43	DMW	

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Report Date: 04/11/2024 08:29

Revised Report

Boise City Public Works
Water Quality Laboratory
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Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry									
Batch: B240680									
Blank (B240680-BLK1)									
COD	<7	mg/L					02/27/2024	MCB	U
LCS (B240680-BS1)									
COD			100	90-110			02/27/2024	MCB	
Duplicate (B240680-DUP1)	Source ID: AC00335-01								
COD					3.92	10	02/27/2024	MCB	
Batch: B240683									
Blank (B240683-BLK1)									
Total Suspended Solids	<0.9	mg/L					02/27/2024	MEC	U
LCS (B240683-BS1)									
Total Suspended Solids			101	90-110			02/27/2024	MEC	
Duplicate (B240683-DUP1)	Source ID: BB03630-02								
Total Suspended Solids					8.03	20	02/27/2024	MEC	
Batch: B240684									
Blank (B240684-BLK1)									
BOD5	<2	mg/L					03/03/2024	BAK	U
LCS (B240684-BS1)									
BOD5			102	84.6-115.4			03/03/2024	BAK	
LCS (B240684-BS2)									
BOD5			109	84.6-115.4			03/03/2024	BAK	
Duplicate (B240684-DUP1)	Source ID: BB03630-03								
BOD5					3.10	30	03/03/2024	BAK	
Batch: B240696									
Blank (B240696-BLK1)									
Total Dissolved Solids	<20	mg/L					02/29/2024	MEC	U
LCS (B240696-BS1)									
Total Dissolved Solids			99.4	90-110			02/29/2024	MEC	
Duplicate (B240696-DUP1)	Source ID: LS01873-01								
Total Dissolved Solids					0.700	10	02/29/2024	MEC	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B240698									
Blank (B240698-BLK1)									
Turbidity	<0.3	NTU					02/28/2024	ASE	U
LCS (B240698-BS1)									
Turbidity			98.2	90-110			02/28/2024	ASE	
Duplicate (B240698-DUP1)	Source ID: AC00337-04								
Turbidity					3.45	25	02/28/2024	ASE	D
Batch: B240708									
Blank (B240708-BLK1)									
Total Suspended Solids	<0.9	mg/L					02/28/2024	RKT	U
LCS (B240708-BS1)									
Total Suspended Solids			96.2	90-110			02/28/2024	RKT	
Duplicate (B240708-DUP1)	Source ID: BB03631-02								
Total Suspended Solids					3.63	20	02/28/2024	RKT	
Duplicate (B240708-DUP2)	Source ID: BB03632-01								
Total Suspended Solids					6.00	20	02/28/2024	RKT	
Batch: B240718									
Blank (B240718-BLK1)									
Nitrate-Nitrite, as N	<0.025	mg/L					02/29/2024	LRF	U
Blank (B240718-BLK2)									
Nitrate-Nitrite, as N	<0.025	mg/L					02/29/2024	LRF	U
LCS (B240718-BS1)									
Nitrate-Nitrite, as N			104	90-110			02/29/2024	LRF	
LCS (B240718-BS2)									
Nitrate-Nitrite, as N			99.7	90-110			02/29/2024	LRF	
Duplicate (B240718-DUP1)	Source ID: BB03631-02								
Nitrate-Nitrite, as N					NR	10	02/29/2024	LRF	
Duplicate (B240718-DUP2)	Source ID: AC00336-01								
Nitrate-Nitrite, as N					0.514	10	02/29/2024	LRF	
Duplicate (B240718-DUP3)	Source ID: LS01875-02								
Nitrate-Nitrite, as N					0.470	10	02/29/2024	LRF	
Matrix Spike (B240718-MS1)	Source ID: BB03631-02								
Nitrate-Nitrite, as N			101	90-110			02/29/2024	LRF	
Matrix Spike (B240718-MS2)	Source ID: AC00336-01								
Nitrate-Nitrite, as N			99.9	90-110			02/29/2024	LRF	
Matrix Spike (B240718-MS3)	Source ID: LS01875-02								
Nitrate-Nitrite, as N			98.2	90-110			02/29/2024	LRF	
Matrix Spike Dup (B240718-MSD1)	Source ID: BB03631-02								
Nitrate-Nitrite, as N			106	90-110	4.55	10	02/29/2024	LRF	
Matrix Spike Dup (B240718-MSD2)	Source ID: AC00336-01								
Nitrate-Nitrite, as N			99.9	90-110	0.0278	10	02/29/2024	LRF	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B240718 (Continued)									
Matrix Spike Dup (B240718-MSD3) Source ID: LS01875-02									
Nitrate-Nitrite, as N			97.3	90-110	0.479	10	02/29/2024	LRF	
Batch: B240744									
Blank (B240744-BLK1)									
Ammonia, as N	<50	ug/L					03/01/2024	MEC	U
LCS (B240744-BS1)									
Ammonia, as N			97.7	90-110			03/01/2024	MEC	
Duplicate (B240744-DUP1) Source ID: LS01873-02									
Ammonia, as N					1.34	10	03/01/2024	MEC	
Duplicate (B240744-DUP2) Source ID: BB03629-03									
Ammonia, as N					1.56	10	03/01/2024	MEC	
Matrix Spike (B240744-MS1) Source ID: LS01873-02									
Ammonia, as N			98.3	80-120			03/01/2024	MEC	
Matrix Spike (B240744-MS2) Source ID: BB03629-03									
Ammonia, as N			104	80-120			03/01/2024	MEC	
Matrix Spike Dup (B240744-MSD1) Source ID: LS01873-02									
Ammonia, as N			100	80-120	1.38	10	03/01/2024	MEC	
Matrix Spike Dup (B240744-MSD2) Source ID: BB03629-03									
Ammonia, as N			106	80-120	1.01	10	03/01/2024	MEC	
Batch: B240796									
Blank (B240796-BLK1)									
Chloride	<0.015	mg/L					03/06/2024	ALN	U
Blank (B240796-BLK2)									
Chloride	<0.015	mg/L					03/07/2024	ALN	U
LCS (B240796-BS1)									
Chloride			95.7	90-110			03/06/2024	ALN	
LCS (B240796-BS2)									
Chloride			96.0	90-110			03/06/2024	ALN	
LCS (B240796-BS3)									
Chloride			95.4	90-110			03/07/2024	ALN	
Duplicate (B240796-DUP1) Source ID: RW00054-10									
Chloride					3.94	10	03/07/2024	ALN	D
Duplicate (B240796-DUP2) Source ID: RW00056-07									
Chloride					0.398	10	03/07/2024	ALN	D
Duplicate (B240796-DUP3) Source ID: AC00337-01									
Chloride					0.672	10	03/06/2024	ALN	
Duplicate (B240796-DUP4) Source ID: LS01873-01									
Chloride					0.319	10	03/07/2024	ALN	D
Matrix Spike (B240796-MS1) Source ID: RW00054-10									
Chloride			96.6	90-110			03/07/2024	ALN	D

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B240796 (Continued)									
Matrix Spike (B240796-MS2) Source ID: RW00056-07									
Chloride			94.1	90-110			03/07/2024	ALN	D
Matrix Spike (B240796-MS3) Source ID: AC00337-01									
Chloride			93.9	90-110			03/06/2024	ALN	
Matrix Spike (B240796-MS4) Source ID: LS01873-01									
Chloride			94.6	90-110			03/07/2024	ALN	D
Matrix Spike Dup (B240796-MSD1) Source ID: RW00054-10									
Chloride			97.2	90-110	0.377	10	03/07/2024	ALN	D
Matrix Spike Dup (B240796-MSD2) Source ID: RW00056-07									
Chloride			94.2	90-110	0.0228	10	03/07/2024	ALN	D
Matrix Spike Dup (B240796-MSD3) Source ID: AC00337-01									
Chloride			97.5	90-110	2.75	10	03/07/2024	ALN	
Matrix Spike Dup (B240796-MSD4) Source ID: LS01873-01									
Chloride			95.4	90-110	0.336	10	03/07/2024	ALN	D
Batch: B240816									
Blank (B240816-BLK1)									
TKN	<0.1	mg/L					03/08/2024	JAL	U
Blank (B240816-BLK2)									
TKN	<0.1	mg/L					03/08/2024	JAL	U
Blank (B240816-BLK3)									
TKN	<0.1	mg/L					03/08/2024	JAL	U
LCS (B240816-BS1)									
TKN			96.1	80-120			03/08/2024	JAL	
LCS (B240816-BS2)									
TKN			105	80-120			03/08/2024	JAL	
LCS (B240816-BS3)									
TKN			104	80-120			03/08/2024	JAL	
Duplicate (B240816-DUP1) Source ID: BB03631-02									
TKN					1.33	20	03/08/2024	JAL	D
Duplicate (B240816-DUP2) Source ID: BB03638-01									
TKN					1.21	20	03/08/2024	JAL	D
Duplicate (B240816-DUP3) Source ID: LS01875-05									
TKN					1.25	20	03/08/2024	JAL	D
Matrix Spike (B240816-MS1) Source ID: BB03631-02									
TKN			106	80-120			03/08/2024	JAL	D
Matrix Spike (B240816-MS2) Source ID: BB03638-01									
TKN			107	80-120			03/08/2024	JAL	D
Matrix Spike (B240816-MS3) Source ID: LS01875-05									
TKN			108	80-120			03/08/2024	JAL	D

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B240816 (Continued)									
Matrix Spike (B240816-MS4) Source ID: RW00055-01									
TKN			107	80-120			03/08/2024	JAL	D
Matrix Spike (B240816-MS5) Source ID: RW00055-03									
TKN			105	80-120			03/08/2024	JAL	D
Matrix Spike (B240816-MS6) Source ID: RW00055-04									
TKN			103	80-120			03/08/2024	JAL	D
Matrix Spike (B240816-MS7) Source ID: RW00055-06									
TKN			102	80-120			03/08/2024	JAL	D
Matrix Spike Dup (B240816-MSD1) Source ID: BB03631-02									
TKN			114	80-120	2.56	20	03/08/2024	JAL	D
Matrix Spike Dup (B240816-MSD2) Source ID: BB03638-01									
TKN			115	80-120	2.66	20	03/08/2024	JAL	D
Matrix Spike Dup (B240816-MSD3) Source ID: LS01875-05									
TKN			114	80-120	2.43	20	03/08/2024	JAL	D
Dissolved Wet Chemistry									
Batch: B240685									
Blank (B240685-BLK1)									
Orthophosphate, as P	<0.003	mg/L					02/27/2024	RKT	U
LCS (B240685-BS1)									
Orthophosphate, as P			96.3	90-110			02/27/2024	RKT	
Duplicate (B240685-DUP1) Source ID: LS01873-02									
Orthophosphate, as P					0.0687	10	02/27/2024	RKT	D
Duplicate (B240685-DUP3) Source ID: RW00054-07RE1									
Orthophosphate, as P					0.433	10	02/27/2024	RKT	D
Matrix Spike (B240685-MS1) Source ID: LS01873-02									
Orthophosphate, as P			98.4	90-110			02/27/2024	RKT	D
Matrix Spike (B240685-MS3) Source ID: RW00054-07RE1									
Orthophosphate, as P			101	90-110			02/27/2024	RKT	D
Matrix Spike Dup (B240685-MSD1) Source ID: LS01873-02									
Orthophosphate, as P			98.5	90-110	0.0349	10	02/27/2024	RKT	D
Matrix Spike Dup (B240685-MSD3) Source ID: RW00054-07RE1									
Orthophosphate, as P			101	90-110	0.0489	10	02/27/2024	RKT	D

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Total Metals									
Batch: B240695									
Blank (B240695-BLK1)									
Calcium	<0.04	mg/L					03/01/2024	AMO	U
Magnesium	<80	ug/L					03/01/2024	AMO	U
Phosphorus as P	<0.012	mg/L					03/01/2024	AMO	U
LCS (B240695-BS1)									
Calcium			102	85-115			03/01/2024	AMO	
Magnesium			101	85-115			03/01/2024	AMO	
Phosphorus as P			108	85-115			03/01/2024	AMO	
Duplicate (B240695-DUP1) Source ID: AC00337-02									
Calcium					0.727	20	03/01/2024	AMO	
Magnesium					0.793	20	03/01/2024	AMO	
Phosphorus as P					0.100	20	03/01/2024	AMO	
Matrix Spike (B240695-MS1) Source ID: AC00337-02									
Calcium			102	70-130			03/01/2024	AMO	
Magnesium			99.6	70-130			03/01/2024	AMO	
Phosphorus as P			112	70-130			03/01/2024	AMO	
Matrix Spike Dup (B240695-MSD1) Source ID: AC00337-02									
Calcium			101	70-130	0.172	20	03/01/2024	AMO	
Magnesium			99.4	70-130	0.180	20	03/01/2024	AMO	
Phosphorus as P			113	70-130	0.221	20	03/01/2024	AMO	
Batch: B240750									
Blank (B240750-BLK1)									
Arsenic	<0.070	ug/L					03/03/2024	DMW	U
Cadmium	<0.010	ug/L					03/03/2024	DMW	U
Lead	<0.010	ug/L					03/03/2024	DMW	U
LCS (B240750-BS1)									
Arsenic			102	85-115			03/03/2024	DMW	
Cadmium			105	85-115			03/03/2024	DMW	
Lead			107	85-115			03/03/2024	DMW	
Duplicate (B240750-DUP1) Source ID: AC00336-01									
Arsenic					1.36	20	03/03/2024	DMW	
Cadmium					9.29	20	03/03/2024	DMW	
Lead					0.499	20	03/03/2024	DMW	
Matrix Spike (B240750-MS1) Source ID: AC00336-01									
Arsenic			98.2	70-130			03/03/2024	DMW	
Cadmium			100	70-130			03/03/2024	DMW	
Lead			96.4	70-130			03/03/2024	DMW	
Matrix Spike Dup (B240750-MSD1) Source ID: AC00336-01									
Arsenic			98.3	70-130	0.110	20	03/03/2024	DMW	
Cadmium			103	70-130	3.09	20	03/03/2024	DMW	
Lead			97.5	70-130	0.693	20	03/03/2024	DMW	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Total Metals (Continued)									
Batch: B240817									
Blank (B240817-BLK1)									
Mercury	<0.01	ug/L					03/08/2024	SAS	U
LCS (B240817-BS1)									
Mercury			102	85-115			03/08/2024	SAS	
Duplicate (B240817-DUP1) Source ID: AC00336-01									
Mercury					1.32	20	03/08/2024	SAS	
Duplicate (B240817-DUP2) Source ID: BB03624-03									
Mercury					NR	20	03/08/2024	SAS	
Matrix Spike (B240817-MS1) Source ID: AC00336-01									
Mercury			99.4	70-130			03/08/2024	SAS	
Matrix Spike (B240817-MS2) Source ID: BB03624-03									
Mercury			106	70-130			03/08/2024	SAS	
Matrix Spike Dup (B240817-MSD1) Source ID: AC00336-01									
Mercury			98.6	70-130	0.699	20	03/08/2024	SAS	
Matrix Spike Dup (B240817-MSD2) Source ID: BB03624-03									
Mercury			107	70-130	0.600	20	03/08/2024	SAS	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Dissolved Metals									
Batch: B240802									
Blank (B240802-BLK1)									
Copper	<0.15	ug/L					03/08/2024	DMW	U
Zinc	<0.50	ug/L					03/08/2024	DMW	U
LCS (B240802-BS1)									
Copper			91.8	85-115			03/08/2024	DMW	
Zinc			93.3	85-115			03/08/2024	DMW	
Duplicate (B240802-DUP1) Source ID: AC00337-03									
Copper					1.42	10	03/08/2024	DMW	
Zinc					1.17	10	03/08/2024	DMW	
Matrix Spike (B240802-MS1) Source ID: AC00337-03									
Copper			90.6	70-130			03/08/2024	DMW	
Zinc			89.1	70-130			03/08/2024	DMW	
Matrix Spike Dup (B240802-MSD1) Source ID: AC00337-03									
Copper			89.4	70-130	0.854	10	03/08/2024	DMW	
Zinc			86.0	70-130	1.20	10	03/08/2024	DMW	
Batch: B241178									
Blank (B241178-BLK1)									
Cadmium	<0.010	ug/L					04/04/2024	DMW	U
Lead	<0.0090	ug/L					04/04/2024	DMW	U
LCS (B241178-BS1)									
Cadmium			99.9	85-115			04/04/2024	DMW	
Lead			99.4	85-115			04/04/2024	DMW	
Duplicate (B241178-DUP1) Source ID: AC00340-01									
Cadmium					NR	10	04/04/2024	DMW	U
Lead					2.01	10	04/04/2024	DMW	
Matrix Spike (B241178-MS1) Source ID: AC00340-01									
Cadmium			102	70-130			04/04/2024	DMW	
Lead			98.4	70-130			04/04/2024	DMW	
Matrix Spike Dup (B241178-MSD1) Source ID: AC00340-01									
Cadmium			102	70-130	0.490	10	04/04/2024	DMW	
Lead			98.3	70-130	0.146	10	04/04/2024	DMW	

Report Date: 04/11/2024 08:29

Revised Report

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Notes and Definitions

Item	Definition
D	Data reported from a dilution
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

for JFK

Janet Finegan-Kelly
Water Quality Laboratory Manager

Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Ada County Highway District

Attn: Steven Turner
3775 Adams Street
Garden City, Idaho 83714–6418
Tel. (208) 387–6269
Fax (208) 387–6391

Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Kristen Clushalm, Steven Turner

Lab#	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA ~~245.2~~ & 245.1	E. Coli - IDEXX Colilert Chlorides - EPA 325.2 @ 4°C	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
✓ AC00 337-01	2/26/24	2/26/24	0905	1534	240226-03-WC 4.8°C	ST	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1
✓ -02	2/26/24	2/26/24	0923	1908	240226-11-WC 6.4°C & 5.7°C	ST	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2
✓ -03	2/25/24	2/26/24	2238	1601	240226-12-WC 8.4°C & 7.2°C	ST	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2
✓ -04	2/26/24	2/26/24	0857	1606	240226-14-WC 7.4°C & 5.6°C	ST	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
Kristen Clushalm	2/26/24 2057	2-27-24 0705	If low volume for 240226-03-WC, please prioritize NO_x + Diss Cd, Cu, Pb, Zn & Orthophosphate.

coc_wql-pi

#AC00337

AC00337

ACHD Sample Filtration, Splitting, and Compositing for Metals

Sample	Split/Filter Info	Filter Used	Bottle/Lid Lots	Bottles Split	Comments
Lims#: AC000337-01 Location: -03 Sample Date: 2-26-24 Sample ID: ACST1C #1	Split 7 Date: 2-26-24 DT Start Split: 0726 Start Filter: 0726 Comp Time: N/A Analyst: AMO/DKT	Filter: ☒Voss ☒0.45µm high-cap. ☒5.0µm ☒10.0µm	Coll Jug: CC00051-25 Comp Jug: N/A SS Tubing: CC00051-28 SS Helper: SSA1 Stir Bar: CC00040-46 Connector: CC00044-99 (x2)	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☑ IC(F) ☒COD ☐	Prioritize NO_x, Diss. metals & DRP per ACHD.
Lims#: AC000337-02 Location: -11 Sample Date: 2-26-24 Sample ID: ACST1C #2	Split 7 Date: 2-26-24 DT Start Split: 0744 Start Filter: 0744 Comp Time: 0739 Analyst: AMO/DKT	Filter: ☒Voss ☒0.45µm high-cap. ☒5.0µm ☒10.0µm	Coll Jug: CC00048-77 Comp Jug: CC00051-37 SS Tubing: CC00051-28 SS Helper: SSA4 DT Stir Bar: CC00040-AL 31-41 Connector: CC00044-99/48-69	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☑ IC(F) ☒COD ☐	2 jugs composited into 40L
Lims#: AC000337-03 Location: -12 Sample Date: 2-26-24 Sample ID: ACST1C #3	Split 7 Date: 2-26-24 DT Start Split: 0823 Start Filter: 0823 Comp Time: 0819 Analyst: AMO/DKT	Filter: ☒Voss ☒0.45µm high-cap. ☒5.0µm ☒10.0µm	Coll Jug: CC00051-25 Comp Jug: CC00051-25 SS Tubing: CC00051-28 SS Helper: SSA5 Stir Bar: CC00051-26 Connector: CC00044-99/48-69	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☑ IC(F) ☒COD ☐	2 jugs composited into 16L
Lims#: AC000337-04 Location: -14 Sample Date: 2-26-24 Sample ID: ACST1C #4	Split 7 Date: 2-26-24 DT Start Split: 0803 Start Filter: 0803 Comp Time: 0759 Analyst: AMO/DKT	Filter: ☒Voss ☒0.45µm high-cap. ☒5.0µm ☒10.0µm	Coll Jug: CC00048-75 CC00051-25 Comp Jug: CC00051-37 SS Tubing: CC00051-28 SS Helper: SSA7 Stir Bar: CC00051-28 23-59 * Connector: CC00048-69 (x2)	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☑ IC(F) ☒COD ☐	2 jugs composited into 40L
Lims#: AC000336-01 Location: -206 Sample Date: 2-26-24 Sample ID: ACST1C #5	Split 7 Date: 2-26-24 DT Start Split: 0833 Start Filter: 0833 Comp Time: 0834 Analyst: AMO/DKT	Filter: ☒Voss ☒0.45µm high-cap. ☒5.0µm ☒10.0µm	Coll Jug: CC00051-38 CC00051-25 Comp Jug: CC00051-35 SS Tubing: CC00051-28 SS Helper: SSA8 Stir Bar: CC00051-36 Connector: CC00048-69 (x2)	☒Teflon Total ☒TKN ☒Teflon Diss (F) ☒NH_3 ☒Hg CVAA ☒NO_x (F) ☒BOD ☒ortho-P (F) ☒TSS ☒Turb ☒TDS ☑ IC(F) ☒COD ☐	2 jugs composited into 16L used 2nd set of VOSS filters (+3). Connector Lot #'s: CC00051-27 (x2)

* ASE and SMC observed splitting

Report Date: 04/11/2024 08:19

Revised Report

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Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00336-01	ACST1C	240226-206-WC	Water		02/26/2024	02/27/2024

Comments:

Container temps: #1 - 7.0 C, #2 - 8.1 C

Report Date: 04/11/2024 08:19

Revised Report

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Analysis Report

Location:	ACST1C	Location Description:	240226-206-WC
Date/Time Collected:	02/26/2024 10:04 - 02/26/2024 16:20		
Lab Number:	AC00336-01	Sample Collector:	S.T
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B240744	0.522	mg/L	0.0500	0.0500	SM 4500-NH3 D-2011	03/01/24	3/1/24 11:42	MEC	
BOD5	B240684	17.7	mg/L	2.00	2.00	SM 5210 B-2016	02/27/24	3/3/24 11:26	BAK	
Chloride	B240796	9.39	mg/L	0.0150	0.0150	EPA 300.0, Rev. 2.1 (1993)	03/06/24	3/6/24 21:58	ALN	
COD	B240680	122	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	02/27/24	2/27/24 11:18	MCB	
Nitrate-Nitrite, as N	B240718	0.278	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	02/29/24	2/29/24 12:13	LRF	
TKN	B240816	2.43	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	03/07/24	3/8/24 9:44	JAL	
Total Dissolved Solids	B240696	85.8	mg/L	20.0	20.0	SM 2540 C-2015	02/28/24	2/29/24 13:58	MEC	
Total Suspended Solids	B240683	75.8	mg/L	0.900	0.900	SM 2540 D-2015	02/27/24	2/27/24 10:39	MEC	
Turbidity	B240698	75.5	NTU	1.2	0.3	EPA 180.1, Rev. 2.0 (1993)	02/28/24	2/28/24 9:41	ASE	D
Dissolved Wet Chemistry										
Orthophosphate, as P	B240685	0.289	mg/L	3.00E-3	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	02/27/24	2/27/24 10:05	RKT	
Total Metals										
Mercury	B240817	0.0183	ug/L	0.0100	0.0100	EPA 245.1	03/07/24	3/8/24 7:58	SAS	
Arsenic	B240750	2.2	ug/L	0.070	0.070	EPA 200.8	03/02/24	3/3/24 13:40	DMW	
Cadmium	B240750	0.087	ug/L	0.010	0.010	EPA 200.8	03/02/24	3/3/24 13:40	DMW	
Calcium	B240695	5.43	mg/L	0.0400	0.0400	EPA 200.7	02/28/24	3/1/24 11:13	AMO	
Lead	B240750	6.3	ug/L	0.010	0.010	EPA 200.8	03/02/24	3/3/24 13:40	DMW	
Magnesium	B240695	2110	ug/L	80.0	80.0	EPA 200.7	02/28/24	3/1/24 11:13	AMO	
Phosphorus as P	B240695	0.570	mg/L	0.0120	0.0120	EPA 200.7	02/28/24	3/1/24 11:13	AMO	
Hardness	B240695	22.2	mg/L	0.100	0.100	SM 2340 B-2011	02/28/24	3/1/24 11:13	AMO	
Dissolved Metals										
Cadmium	B241178	0.016	ug/L	0.010	0.010	EPA 200.8	04/04/24	4/4/24 16:02	DMW	
Copper	B240802	5.0	ug/L	0.15	0.15	EPA 200.8	03/08/24	3/8/24 16:25	DMW	
Lead	B241178	0.26	ug/L	9.00E-3	9.00E-3	EPA 200.8	04/04/24	4/4/24 16:02	DMW	
Zinc	B240802	20.2	ug/L	0.50	0.50	EPA 200.8	03/08/24	3/8/24 16:25	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 04/11/2024 08:19

Revised Report

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Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry									
Batch: B240680									
Blank (B240680-BLK1)									
COD	<7	mg/L					02/27/2024	MCB	U
LCS (B240680-BS1)									
COD			100	90-110			02/27/2024	MCB	
Duplicate (B240680-DUP1)	Source ID: AC00335-01								
COD					3.92	10	02/27/2024	MCB	
Batch: B240683									
Blank (B240683-BLK1)									
Total Suspended Solids	<0.9	mg/L					02/27/2024	MEC	U
LCS (B240683-BS1)									
Total Suspended Solids			101	90-110			02/27/2024	MEC	
Duplicate (B240683-DUP1)	Source ID: BB03630-02								
Total Suspended Solids					8.03	20	02/27/2024	MEC	
Batch: B240684									
Blank (B240684-BLK1)									
BOD5	<2	mg/L					03/03/2024	BAK	U
LCS (B240684-BS1)									
BOD5			102	84.6-115.4			03/03/2024	BAK	
LCS (B240684-BS2)									
BOD5			109	84.6-115.4			03/03/2024	BAK	
Duplicate (B240684-DUP1)	Source ID: BB03630-03								
BOD5					3.10	30	03/03/2024	BAK	
Batch: B240696									
Blank (B240696-BLK1)									
Total Dissolved Solids	<20	mg/L					02/29/2024	MEC	U
LCS (B240696-BS1)									
Total Dissolved Solids			99.4	90-110			02/29/2024	MEC	
Duplicate (B240696-DUP1)	Source ID: LS01873-01								
Total Dissolved Solids					0.700	10	02/29/2024	MEC	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B240698									
Blank (B240698-BLK1)									
Turbidity	<0.3	NTU					02/28/2024	ASE	U
LCS (B240698-BS1)									
Turbidity			98.2	90-110			02/28/2024	ASE	
Duplicate (B240698-DUP1) Source ID: AC00337-04									
Turbidity					3.45	25	02/28/2024	ASE	D
Batch: B240718									
Blank (B240718-BLK1)									
Nitrate-Nitrite, as N	<0.025	mg/L					02/29/2024	LRF	U
Blank (B240718-BLK2)									
Nitrate-Nitrite, as N	<0.025	mg/L					02/29/2024	LRF	U
LCS (B240718-BS1)									
Nitrate-Nitrite, as N			104	90-110			02/29/2024	LRF	
LCS (B240718-BS2)									
Nitrate-Nitrite, as N			99.7	90-110			02/29/2024	LRF	
Duplicate (B240718-DUP1) Source ID: BB03631-02									
Nitrate-Nitrite, as N					NR	10	02/29/2024	LRF	
Duplicate (B240718-DUP2) Source ID: AC00336-01									
Nitrate-Nitrite, as N					0.514	10	02/29/2024	LRF	
Duplicate (B240718-DUP3) Source ID: LS01875-02									
Nitrate-Nitrite, as N					0.470	10	02/29/2024	LRF	
Matrix Spike (B240718-MS1) Source ID: BB03631-02									
Nitrate-Nitrite, as N			101	90-110			02/29/2024	LRF	
Matrix Spike (B240718-MS2) Source ID: AC00336-01									
Nitrate-Nitrite, as N			99.9	90-110			02/29/2024	LRF	
Matrix Spike (B240718-MS3) Source ID: LS01875-02									
Nitrate-Nitrite, as N			98.2	90-110			02/29/2024	LRF	
Matrix Spike Dup (B240718-MSD1) Source ID: BB03631-02									
Nitrate-Nitrite, as N			106	90-110	4.55	10	02/29/2024	LRF	
Matrix Spike Dup (B240718-MSD2) Source ID: AC00336-01									
Nitrate-Nitrite, as N			99.9	90-110	0.0278	10	02/29/2024	LRF	
Matrix Spike Dup (B240718-MSD3) Source ID: LS01875-02									
Nitrate-Nitrite, as N			97.3	90-110	0.479	10	02/29/2024	LRF	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B240744									
Blank (B240744-BLK1)									
Ammonia, as N	<50	ug/L					03/01/2024	MEC	U
LCS (B240744-BS1)									
Ammonia, as N			97.7	90-110			03/01/2024	MEC	
Duplicate (B240744-DUP1) Source ID: LS01873-02									
Ammonia, as N					1.34	10	03/01/2024	MEC	
Duplicate (B240744-DUP2) Source ID: BB03629-03									
Ammonia, as N					1.56	10	03/01/2024	MEC	
Matrix Spike (B240744-MS1) Source ID: LS01873-02									
Ammonia, as N			98.3	80-120			03/01/2024	MEC	
Matrix Spike (B240744-MS2) Source ID: BB03629-03									
Ammonia, as N			104	80-120			03/01/2024	MEC	
Matrix Spike Dup (B240744-MSD1) Source ID: LS01873-02									
Ammonia, as N			100	80-120	1.38	10	03/01/2024	MEC	
Matrix Spike Dup (B240744-MSD2) Source ID: BB03629-03									
Ammonia, as N			106	80-120	1.01	10	03/01/2024	MEC	
Batch: B240796									
Blank (B240796-BLK1)									
Chloride	<0.015	mg/L					03/06/2024	ALN	U
Blank (B240796-BLK2)									
Chloride	<0.015	mg/L					03/07/2024	ALN	U
LCS (B240796-BS1)									
Chloride			95.7	90-110			03/06/2024	ALN	
LCS (B240796-BS2)									
Chloride			96.0	90-110			03/06/2024	ALN	
LCS (B240796-BS3)									
Chloride			95.4	90-110			03/07/2024	ALN	
Duplicate (B240796-DUP1) Source ID: RW00054-10									
Chloride					3.94	10	03/07/2024	ALN	D
Duplicate (B240796-DUP2) Source ID: RW00056-07									
Chloride					0.398	10	03/07/2024	ALN	D
Duplicate (B240796-DUP3) Source ID: AC00337-01									
Chloride					0.672	10	03/06/2024	ALN	
Duplicate (B240796-DUP4) Source ID: LS01873-01									
Chloride					0.319	10	03/07/2024	ALN	D
Matrix Spike (B240796-MS1) Source ID: RW00054-10									
Chloride			96.6	90-110			03/07/2024	ALN	D
Matrix Spike (B240796-MS2) Source ID: RW00056-07									
Chloride			94.1	90-110			03/07/2024	ALN	D

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B240796 (Continued)									
Matrix Spike (B240796-MS3) Source ID: AC00337-01									
Chloride			93.9	90-110			03/06/2024	ALN	
Matrix Spike (B240796-MS4) Source ID: LS01873-01									
Chloride			94.6	90-110			03/07/2024	ALN	D
Matrix Spike Dup (B240796-MSD1) Source ID: RW00054-10									
Chloride			97.2	90-110	0.377	10	03/07/2024	ALN	D
Matrix Spike Dup (B240796-MSD2) Source ID: RW00056-07									
Chloride			94.2	90-110	0.0228	10	03/07/2024	ALN	D
Matrix Spike Dup (B240796-MSD3) Source ID: AC00337-01									
Chloride			97.5	90-110	2.75	10	03/07/2024	ALN	
Matrix Spike Dup (B240796-MSD4) Source ID: LS01873-01									
Chloride			95.4	90-110	0.336	10	03/07/2024	ALN	D
Batch: B240816									
Blank (B240816-BLK1)									
TKN	<0.1	mg/L					03/08/2024	JAL	U
Blank (B240816-BLK2)									
TKN	<0.1	mg/L					03/08/2024	JAL	U
Blank (B240816-BLK3)									
TKN	<0.1	mg/L					03/08/2024	JAL	U
LCS (B240816-BS1)									
TKN			96.1	80-120			03/08/2024	JAL	
LCS (B240816-BS2)									
TKN			105	80-120			03/08/2024	JAL	
LCS (B240816-BS3)									
TKN			104	80-120			03/08/2024	JAL	
Duplicate (B240816-DUP1) Source ID: BB03631-02									
TKN					1.33	20	03/08/2024	JAL	D
Duplicate (B240816-DUP2) Source ID: BB03638-01									
TKN					1.21	20	03/08/2024	JAL	D
Duplicate (B240816-DUP3) Source ID: LS01875-05									
TKN					1.25	20	03/08/2024	JAL	D
Matrix Spike (B240816-MS1) Source ID: BB03631-02									
TKN			106	80-120			03/08/2024	JAL	D
Matrix Spike (B240816-MS2) Source ID: BB03638-01									
TKN			107	80-120			03/08/2024	JAL	D
Matrix Spike (B240816-MS3) Source ID: LS01875-05									
TKN			108	80-120			03/08/2024	JAL	D
Matrix Spike (B240816-MS4) Source ID: RW00055-01									
TKN			107	80-120			03/08/2024	JAL	D

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B240816 (Continued)									
Matrix Spike (B240816-MS5) Source ID: RW00055-03									
TKN			105	80-120			03/08/2024	JAL	D
Matrix Spike (B240816-MS6) Source ID: RW00055-04									
TKN			103	80-120			03/08/2024	JAL	D
Matrix Spike (B240816-MS7) Source ID: RW00055-06									
TKN			102	80-120			03/08/2024	JAL	D
Matrix Spike Dup (B240816-MSD1) Source ID: BB03631-02									
TKN			114	80-120	2.56	20	03/08/2024	JAL	D
Matrix Spike Dup (B240816-MSD2) Source ID: BB03638-01									
TKN			115	80-120	2.66	20	03/08/2024	JAL	D
Matrix Spike Dup (B240816-MSD3) Source ID: LS01875-05									
TKN			114	80-120	2.43	20	03/08/2024	JAL	D
Dissolved Wet Chemistry									
Batch: B240685									
Blank (B240685-BLK1)									
Orthophosphate, as P	<0.003	mg/L					02/27/2024	RKT	U
LCS (B240685-BS1)									
Orthophosphate, as P			96.3	90-110			02/27/2024	RKT	
Duplicate (B240685-DUP1) Source ID: LS01873-02									
Orthophosphate, as P					0.0687	10	02/27/2024	RKT	D
Duplicate (B240685-DUP3) Source ID: RW00054-07RE1									
Orthophosphate, as P					0.433	10	02/27/2024	RKT	D
Matrix Spike (B240685-MS1) Source ID: LS01873-02									
Orthophosphate, as P			98.4	90-110			02/27/2024	RKT	D
Matrix Spike (B240685-MS3) Source ID: RW00054-07RE1									
Orthophosphate, as P			101	90-110			02/27/2024	RKT	D
Matrix Spike Dup (B240685-MSD1) Source ID: LS01873-02									
Orthophosphate, as P			98.5	90-110	0.0349	10	02/27/2024	RKT	D
Matrix Spike Dup (B240685-MSD3) Source ID: RW00054-07RE1									
Orthophosphate, as P			101	90-110	0.0489	10	02/27/2024	RKT	D

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Total Metals									
Batch: B240695									
Blank (B240695-BLK1)									
Calcium	<0.04	mg/L					03/01/2024	AMO	U
Magnesium	<80	ug/L					03/01/2024	AMO	U
Phosphorus as P	<0.012	mg/L					03/01/2024	AMO	U
LCS (B240695-BS1)									
Calcium			102	85-115			03/01/2024	AMO	
Magnesium			101	85-115			03/01/2024	AMO	
Phosphorus as P			108	85-115			03/01/2024	AMO	
Duplicate (B240695-DUP1) Source ID: AC00337-02									
Calcium					0.727	20	03/01/2024	AMO	
Magnesium					0.793	20	03/01/2024	AMO	
Phosphorus as P					0.100	20	03/01/2024	AMO	
Matrix Spike (B240695-MS1) Source ID: AC00337-02									
Calcium			102	70-130			03/01/2024	AMO	
Magnesium			99.6	70-130			03/01/2024	AMO	
Phosphorus as P			112	70-130			03/01/2024	AMO	
Matrix Spike Dup (B240695-MSD1) Source ID: AC00337-02									
Calcium			101	70-130	0.172	20	03/01/2024	AMO	
Magnesium			99.4	70-130	0.180	20	03/01/2024	AMO	
Phosphorus as P			113	70-130	0.221	20	03/01/2024	AMO	
Batch: B240750									
Blank (B240750-BLK1)									
Arsenic	<0.070	ug/L					03/03/2024	DMW	U
Cadmium	<0.010	ug/L					03/03/2024	DMW	U
Lead	<0.010	ug/L					03/03/2024	DMW	U
LCS (B240750-BS1)									
Arsenic			102	85-115			03/03/2024	DMW	
Cadmium			105	85-115			03/03/2024	DMW	
Lead			107	85-115			03/03/2024	DMW	
Duplicate (B240750-DUP1) Source ID: AC00336-01									
Arsenic					1.36	20	03/03/2024	DMW	
Cadmium					9.29	20	03/03/2024	DMW	
Lead					0.499	20	03/03/2024	DMW	
Matrix Spike (B240750-MS1) Source ID: AC00336-01									
Arsenic			98.2	70-130			03/03/2024	DMW	
Cadmium			100	70-130			03/03/2024	DMW	
Lead			96.4	70-130			03/03/2024	DMW	
Matrix Spike Dup (B240750-MSD1) Source ID: AC00336-01									
Arsenic			98.3	70-130	0.110	20	03/03/2024	DMW	
Cadmium			103	70-130	3.09	20	03/03/2024	DMW	
Lead			97.5	70-130	0.693	20	03/03/2024	DMW	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Total Metals (Continued)									
Batch: B240817									
Blank (B240817-BLK1)									
Mercury	<0.01	ug/L					03/08/2024	SAS	U
LCS (B240817-BS1)									
Mercury			102	85-115			03/08/2024	SAS	
Duplicate (B240817-DUP1) Source ID: AC00336-01									
Mercury					1.32	20	03/08/2024	SAS	
Duplicate (B240817-DUP2) Source ID: BB03624-03									
Mercury					NR	20	03/08/2024	SAS	
Matrix Spike (B240817-MS1) Source ID: AC00336-01									
Mercury			99.4	70-130			03/08/2024	SAS	
Matrix Spike (B240817-MS2) Source ID: BB03624-03									
Mercury			106	70-130			03/08/2024	SAS	
Matrix Spike Dup (B240817-MSD1) Source ID: AC00336-01									
Mercury			98.6	70-130	0.699	20	03/08/2024	SAS	
Matrix Spike Dup (B240817-MSD2) Source ID: BB03624-03									
Mercury			107	70-130	0.600	20	03/08/2024	SAS	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Dissolved Metals									
Batch: B240802									
Blank (B240802-BLK1)									
Copper	<0.15	ug/L					03/08/2024	DMW	U
Zinc	<0.50	ug/L					03/08/2024	DMW	U
LCS (B240802-BS1)									
Copper			91.8	85-115			03/08/2024	DMW	
Zinc			93.3	85-115			03/08/2024	DMW	
Duplicate (B240802-DUP1) Source ID: AC00337-03									
Copper					1.42	10	03/08/2024	DMW	
Zinc					1.17	10	03/08/2024	DMW	
Matrix Spike (B240802-MS1) Source ID: AC00337-03									
Copper			90.6	70-130			03/08/2024	DMW	
Zinc			89.1	70-130			03/08/2024	DMW	
Matrix Spike Dup (B240802-MSD1) Source ID: AC00337-03									
Copper			89.4	70-130	0.854	10	03/08/2024	DMW	
Zinc			86.0	70-130	1.20	10	03/08/2024	DMW	
Batch: B241178									
Blank (B241178-BLK1)									
Cadmium	<0.010	ug/L					04/04/2024	DMW	U
Lead	<0.0090	ug/L					04/04/2024	DMW	U
LCS (B241178-BS1)									
Cadmium			99.9	85-115			04/04/2024	DMW	
Lead			99.4	85-115			04/04/2024	DMW	
Duplicate (B241178-DUP1) Source ID: AC00340-01									
Cadmium					NR	10	04/04/2024	DMW	U
Lead					2.01	10	04/04/2024	DMW	
Matrix Spike (B241178-MS1) Source ID: AC00340-01									
Cadmium			102	70-130			04/04/2024	DMW	
Lead			98.4	70-130			04/04/2024	DMW	
Matrix Spike Dup (B241178-MSD1) Source ID: AC00340-01									
Cadmium			102	70-130	0.490	10	04/04/2024	DMW	
Lead			98.3	70-130	0.146	10	04/04/2024	DMW	

Report Date: 04/11/2024 08:19

Revised Report

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Notes and Definitions

Item	Definition
D	Data reported from a dilution
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

for JFK

Janet Finegan-Kelly
Water Quality Laboratory Manager

Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Ada County Highway District

Attn: Steven Turner
3775 Adams Street
Garden City, Idaho 83714–6418
Tel. (208) 387–6269
Fax (208) 387–6391

Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Kristin Clushelm
Steven Turner

Lab#	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA ~~245.2~~ 245.1	~~E. Coli - IDEXX~~ Colilert	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
✓ AC00 336-01	2/20/24	2/24/24	1004	1620	240226-206-WC	ST	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2
					7.0°C & 8.1°C																				

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
Kristin Clushelm	2/26/24 2158	2-27-24 0705	

coc_wql-pi

AC00336

C-311 WY24

AC00226

Technical Memorandum

1290 W. Myrtle St. Suite 340
Boise, ID 83702

Phone: 801.316.9859

Prepared for: Ada County Highway District
Project Title: NPDES Phase I Stormwater Support WY 2024
Project No.: 159103

Technical Memorandum

Subject: ACHD Phase I Storm Event Report for March 28, 2024
Date: June 20, 2024
To: Monica Lowe
Cc: Steven Turner
Kristen Chisholm
From: Zuly Lapa, Project Engineer

Prepared by: Zuly Lapa, EIT, Project Engineer

Reviewed by: Melissa Jannusch, PE, Project Manager

Section 1: Introduction

The Environmental Protection Agency Region 10 reissued a Municipal Separate Storm Sewer System Phase I National Pollutant Discharge Elimination System Permit (NPDES) Permit, effective October 1, 2021, to Ada County Highway District (ACHD), Boise City, Ada County Drainage District No. 3, Idaho Transportation Department District 3, Boise State University, and Garden City. Under the NPDES Permit, Permittees are required to continue to conduct wet weather stormwater outfall monitoring and subwatershed monitoring. Four outfall monitoring sites (Lucky, Whitewater, Main, and Americana) and one subwatershed monitoring site (AS_6) have been established. The AS_6 site represents a subwatershed located within the Americana watershed. At each site, a minimum of three composite and three grab samples will be collected during Water Year (WY) 2024 (October 1, 2023, through September 30, 2024). The following storm event report summarizes stormwater sampling results from the March 28, 2024, storm event.

Section 2: Project Status

Table 2-1 is a summary of the sample types collected to date for WY 2024 Phase I Stormwater Outfall Monitoring. When samples are qualified, additional samples will be attempted from subsequent storms to collect unqualified samples.

Table 2-1. WY 2024 Samples Collected

Date	Lucky	Whitewater	Main	Americana	AS_6
October 10, 2023	G, C[1,2]	G	--	G, C[3]	--
November 19, 2023	G, C	G, C	G, C	G[4], C	G, C
February 1, 2024	G[5], C	G[5], C[6]	G[5], C	G[5], C	G[5], C
February 26, 2024	G, C	G, C	G, C[7]	G, C	G, C
March 28, 2024	--	C	G, C	G	G
Unqualified Samples:	3G, 3C	3G, 3C	3G, 3C	3G, 3C	3G, 3C
Samples Remaining:	0G, 0C	0G, 0C	0G, 0C	0G, 0C	0G, 0C

Notes:
-- = no samples taken
C = composite sample
G = grab sample
[1] Composite samples qualified due to lack of representativeness (50%–75%).
[2] Incomplete water quality analysis due to low composite sample volume.
[3] Composite samples qualified due to lack of representativeness (50%–75%) of the calculated flow volume.
[4] Incomplete field parameter collection on the grab sample data form due to field error.
[5] E. coli sample qualified due to exceeded hold time.
[6] Composite sample rejected due to automatic sampler triggering prior to storm event runoff. The subsamples taken prior to the event represented more than 10% of the composite volume.
[7] Composite sample qualified due to automatic sampler triggering prior to storm event runoff. The subsamples taken prior to the event represented less than 10% of the composite volume.

Section 3: Storm Event Summary

The March 28, 2024, storm event and the subsequent preparation and sampling efforts are detailed in the following sections.

3.1 Storm Detail

A summary of the forecast on which monitoring decisions were based is detailed below. The sampling event communication form that describes the forecast and summarizes the decision-making process from March 28, 2024, is included in Attachment A for reference.

Wednesday, March 27, 2024 to Thursday, March 28, 2024

- On the morning of March 27, the National Weather Service issued a forecast of rain shadowing and light rain in the Boise area, starting March 27 at 1800 until March 28 at 0300. Rain was predicted to increase until March 28, 2024 at 1000. The chance of precipitation was 90%, with more than 0.1 inches of precipitation forecasted.
- Setup was accomplished in the afternoon of March 27. An expected precipitation depth of 0.11 inches was used to set trigger volumes at monitoring stations. A runoff calculations worksheet showing how the trigger volumes were calculated is included in Attachment A.
- Moderate rain first started at approximately March 27 at 1901 and ended March 28 at 1249.
- Precipitation totals ranged between 0.53 and 0.59 inches at local rain gauges.

Flow measurements and precipitation data are listed in Table 1 along with a sampling summary. Hydrographs for the Whitewater, Main, Americana and AS_6 sites showing flow, rain, and sample collection data are included in Attachment B.

3.2 Sampling Summary

Whitewater and Main monitoring stations were set up on March 27, to collect flow-proportional composite samples during the storm. Sampler enable conditions were programmed into the Whitewater and Americana flowmeters. A site-specific velocity cutoff value was programmed into Main and AS_6 flowmeter. Setup and sampling information are included in Table 1. The field forms completed during setup/shutdown and sampling are included in Attachment C.

Grab Samples

A two-member team mobilized to collect stormwater runoff grab samples and verify operation of the automatic sampling equipment on March 28 around 0131. Grab samples for Main, Americana, and AS_6 was submitted to the West Boise Water Quality Lab (WQL) at 0816 on March 28.

Results for grab samples, including field parameter and analytical data, are included in Table 2. Laboratory analytical reports are included in Attachment D.

Composite Samples

Composite samples were collected at the Main monitoring station and submitted to the WQL at 1134 on March 28. The composite sample at Whitewater monitoring station was submitted at 1314 on March 28 to the WQL.

Analytical results are shown in Table 2 and pollutant loading estimates for the event are detailed in Table 3. Laboratory analytical reports are included in Attachment D.

Section 4: Quality Assurance/Quality Control

A summary of quality control samples collected during the March 28, 2024, storm event is presented below in Table 4-1. A field blank and a field duplicate were collected from the Main monitoring station. A field blank composite sample was collected from the Americana monitoring station. The analytical results for these samples are included in Table 4.

Table 4-1. Quality Control Samples

Sample ID	Sample Type	Parent Sample	Conclusions
240328-12-001	Field blank	Main grab	No *E. coli* detection was reported in the field blank.
240328-12-101	Field duplicate	Main grab	Relative percent difference was within the acceptable range.
240328-14-002	Field blank composite	None	No composite parameter detection was reported on the field blank composite.

Data quality objectives for this storm were evaluated and tracked using the data validation review checklist included in Attachment A. Performance criteria for analytical and non-analytical data was met for this storm event.

Section 5: Notes and Recommendations

Whitewater

At Whitewater, composite sample bottle 3 had a power failed error message from 0405 until 0407 on March 28, due to the battery on the sampler running low. The error message was present for the last four subsamples in bottle 3. The battery was replaced prior to installing bottle 4, resolving the error message.

Data Tables

Table 1. Sampling and Flow Summary					
	Lucky	Whitewater	Main	Americana	AS_6
Grab samples collected and submitted?	NO	NO	YES	YES	YES
Composite samples collected and submitted?	NO	YES	YES	NO	NO
Trigger volume (ft^3)	--	800 cf	3411 gal	--	--
Velocity cutoff (fps)	--	--	--	--	--
Sampler enable condition (in)	--	Level > 3.3"	Level > 1.84"	--	--
Runoff start time	--	1919 [1]	1911 [1]	1901 [1]	1930 [1]
Grab sample collection time	--	--	0137	0159	0219
Composite sample stop time	--	1133	0739	--	--
Runoff stop time		1249 [2]	0817 [2]	0928 [2]	1013 [2]
Volume of discharge sampled (ft^3)	--	127,090	37,197	--	--
Total runoff volume (ft^3)	--	154,801	48,613	372,974	37,320
Percent of storm flow sampled (%)	--	82%	77%	--	--
Composite sample duration (hrs)	--	13	11	--	--
Storm Precipitation (in)	0.53	0.59	0.53	0.53/0.56	0.53/0.56
Referenced Rain Gauge	Cynthia Mann	Whitewater	Front	Front/East	Front/East
Sampler messages (counts): Success	--	159	70	--	--
Number of composite bottles filled	--	8	3	--	--
Composite sample volume (Approx.; ml)	--	88,300 ml	40,500 ml	--	--

Notes:

– = No data.

1 Storm runoff started on 3/27/2024.

2 Storm runoff ended on 3/28/2024.

Table 2. Field and Analytical Data Summary

Monitoring Station	Sample Date	Sample ID Grab	Field Parameters				Analytical Parameters																				
			Dissolved Oxygen	pH	Conductivity	Temperature	E. coli	Sample ID Composite	BOD_5	COD	Hardness as $CaCO_3$	Turbidity	TSS	TDS	Total Phosphorus	Orthophosphate as P	Ammonia as N	Nitrate + Nitrite as N	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
			mg/L	S.U.	uS/cm	C	mpn/100 mL		mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Lucky	3/28/2024	240328-03-WG	--	--	--	--	--	240328-03-WC	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Whitewater	3/28/2024	240328-11-WG	--	--	--	--	--	240328-11-WC	8.20	84.0	31.9	26.2	131	76.0	0.318	0.131	0.236	0.277	1.63	2.0	<0.0100	0.074	1.9	0.097	5.8	0.0151	9.80
Main	3/28/2024	240328-12-WG	10.02	7.82	116.08	10.91	21.6	240328-12-WC	5.03	104	12.6	24.6	91.7	44.2	0.145	0.0494	0.293	0.151	1.18	1.1	<0.0100	0.071	2.3	0.068	5.9	0.0171	14.7
Americana	3/28/2024	240328-14-WG	10.57	7.28	255.40	9.79	365.4	240328-14-WC	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AS_6	3/28/2024	240328-206-WG	9.92	7.60	108.59	7.74	387.3	240328-206-WC	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
– = No data.

Table 3. Event Pollutant Loading Estimates in Pounds						
Monitoring Station	Event Date	TSS	Total Phosphorus	Ammonia as N	Nitrate + Nitrite as N	TKN
Lucky	3/28/2024	--	--	--	--	--
Whitewater	3/28/2024	1266	3.07	2.28	2.68	15.7
Main	3/28/2024	278.2	0.440	0.889	0.458	3.58
Americana	3/28/2024	--	--	--	--	--
AS_6	3/28/2024	--	--	--	--	--

Notes:

– = No data.

Table 4. QC Sample Summary

Date	Parent Sample	Sample ID	Type	E. coli	BOD_5	COD	Hardness as CaCO3	Turbidity	TSS	TDS	Total Phosphorus	Dissolved Orthophosphate	Ammonia	Nitrate + Nitrite (N)	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
				mpn/100 mL	mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
3/28/2024	240328-12-WG	240328-12-001	Field Blank	<1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/28/2024	240328-12-WG	240328-12-101	Field Duplicate	17.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calculated parent/duplicate RPD				5%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Allowable RPD				40%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
3/28/2024	--	240328-14-002	Field Blank Composite	--	<2.00	<7.00	<0.100	<0.3	<0.900	<20.0	<0.0120	<3.00E-3	<0.0450	<0.0250	<0.100	<0.0700	<0.0100	<0.0100	<0.150	<9.00E-3	<0.0100	<0.0100	<0.500

Notes:

– = No data.

Attachment A: Supplemental Documents

Sampling Event Communication Form

Data Validation Checklist

Runoff Calculation Worksheet

SAMPLING EVENT COMMUNICATION FORM

Date: 03/27/2024	Time: 8:10 AM	Initials: ST
Is there a targeted sampling event during the next 36 hours? (Or, if it is Friday, is a targeted event expected before 5:00 PM Monday?)		Maybe

Past 72 hr Precip	0.08" at airport
Date and time of expected event	3/28/24 @ 3:00 am
Expected amount of precipitation	0.16"
Percent chance of precipitation	94%
Percent chance of >0.10" over 12 hours	90%

NWS Update

Spoke with Les from NWS and he said the main band of the rain will start around 3:00 AM with some light sprinkles around 6:00 pm on 3/27/24 resulting from rain shadowing. The total rain from 6:00 PM (3/27) – 3:00 AM (3/28) will be 0.02". There will be constant showers until 10:00 AM and there may be some light sprinkles till 12:00 PM. Theres a 90% chance we will receive over 0.1" of rain.

Targeted Station & Samples

Lucky	Whitewater	Main	Americana	AS_6	State (Phase II)
☐ Grab	☐ Grab	☒ Grab	☒ Grab	☒ Grab	☒ Grab
☐ Composite	☒ Composite	☒ Composite	☐ Composite	☐ Composite	☒ Composite

Type of Forecasted Precipitation

☐ Light Rain	☒ Rain	☐ Rain on Snow
☐ Scattered Showers	☐ Thunder Showers	☐ Snowmelt
☐ Other:		

Reasons for Not Targeting a Forecasted Storm and/or Stations

☐ Holiday
☐ Waiting on Antecedent Dry Period – Expires:
☐ Equipment Concerns:
☐ Other:

Text Forecast

NWS Forecast for: 2 Miles NNW Garden City ID
Issued by: National Weather Service Boise, ID
Last Update: 3:29 am MST Mar 27, 2024

Today: Scattered showers after noon. Mostly cloudy, with a high near 58. Southeast wind 7 to 14 mph. Chance of precipitation is 30%.
Tonight: Showers. Low around 39. East southeast wind 6 to 13 mph. Chance of precipitation is 90%. New precipitation amounts between a tenth and quarter of an inch possible.
Thursday: Showers likely, with thunderstorms also possible after noon. Mostly cloudy, with a high near 54. Calm wind becoming west 5 to 8 mph in the afternoon. Chance of precipitation is 70%.
Thursday Night: A 20 percent chance of showers before midnight. Mostly cloudy, with a low around 35. West southwest wind around 6 mph becoming east southeast after midnight.
Friday: A 20 percent chance of showers after noon. Partly sunny, with a high near 55. East southeast wind 3 to 7 mph.
Friday Night: Mostly cloudy, with a low around 34.
Saturday: Partly sunny, with a high near 59.

Saturday Night: A 20 percent chance of showers after midnight. Partly cloudy, with a low around 35.
Sunday: A 30 percent chance of showers, mainly before noon. Mostly sunny, with a high near 60.
Sunday Night: Mostly clear, with a low around 34.
Monday: Sunny, with a high near 63.
Monday Night: Mostly clear, with a low around 38.
Tuesday: Sunny, with a high near 71.

Forecast Discussion

Area Forecast Discussion
National Weather Service Boise ID
356 AM MDT Wed Mar 27 2024

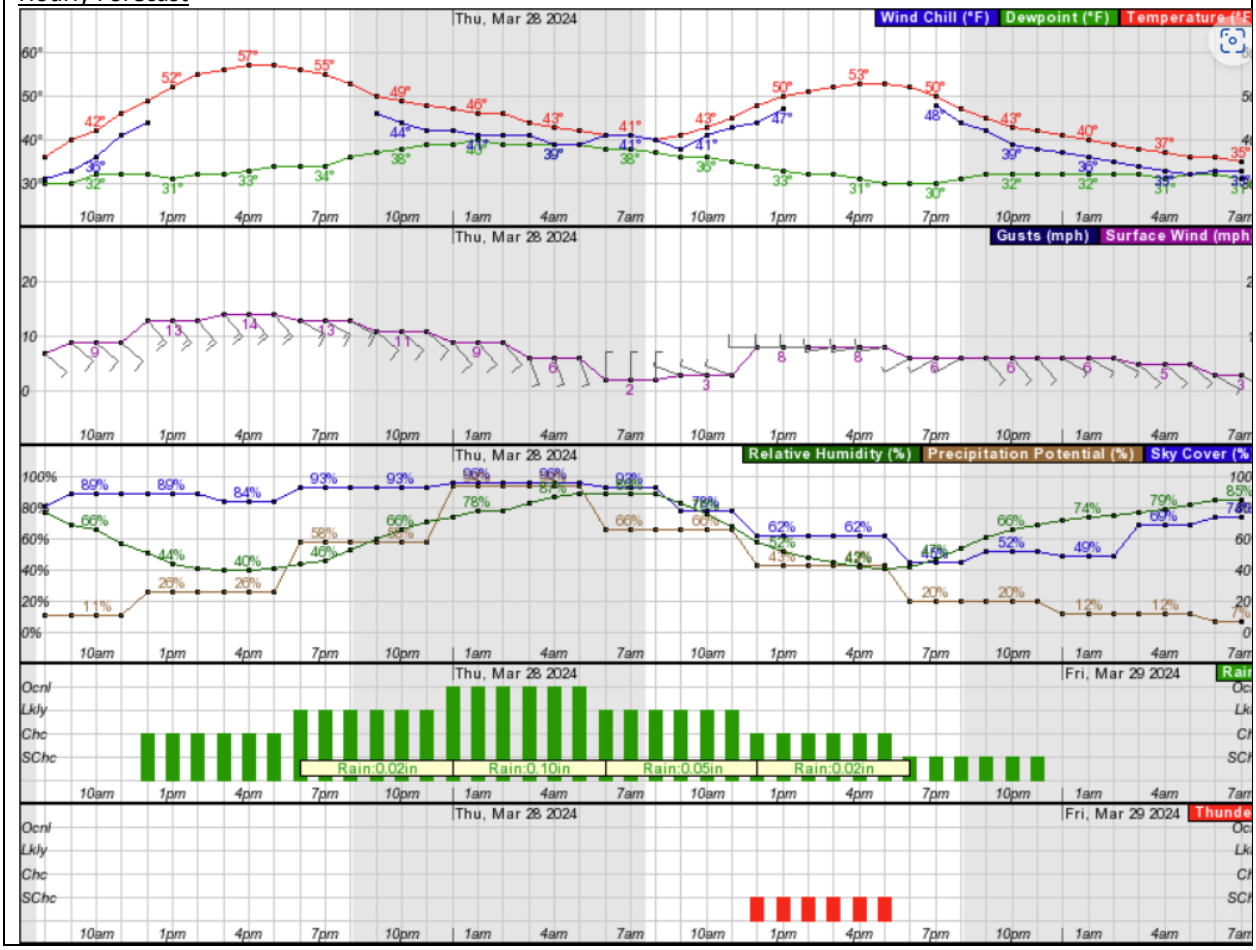
.SHORT TERM...Today through Friday night...A warm frontal passage this morning will open up into moist southwest aloft this afternoon. Precipitation will initiate over southeast Oregon early in the afternoon, spreading into southwest Idaho by early evening. While the thunderstorm threat today is less than 15% an overlap in daytime heating and increasing instability aloft could support a strike/flash over portions of SE Oregon, mainly Harney/Malheur counties. The increased flow aloft and deep Pacific low will bring breezy conditions today, the strongest winds across southeast Oregon. **Wednesday night is wet across the region as a broad upper low approaches the Pac NW coast.** The mountains of e-central Oregon and w-central Idaho see the focus of heaviest precipitation through Thursday morning where liquid totals of 0.50 to 1.00 inch are expected. Snow levels through Wednesday night will run 5000 to 6000 kft dropping to 3500 to 5000 ft Thursday. Total accumulation of 5 to 10 inches is expected above 6000 ft with up to 2 inches in mountain valleys above 4500 feet. **Lower elevations that stay dry into Wednesday evening will see precipitation fill in overnight with the passage of a cold front. Lower valleys are likely to see 0.10 to 0.20 inch of rain.** The main low will reach the WA coast on Thursday, the accompanying colder air aloft and daytime heating supporting a continued chance of showers and slight chance of thunderstorms. The shower threat retreats to the mountains Thursday night, expanding again on Friday with a 20% chance in the valleys and 40 to 70 percent chance in the mountains.

.LONG TERM...Saturday through Wednesday...The closed upper level low will move to our southwest on Saturday, becoming a positively tilted upper level trough that will keep temperatures cool through the weekend. Lingering moisture with this trough will also allow for a slight chance of precipitation (20-30% chance) over high terrain and near the Nevada border on Saturday and Sunday. Temperatures will be slightly below normal, with snow levels right around 4000-5000 feet. Any snow accumulations will be minimal, with higher elevations in the mountains seeing anywhere from 1-3 inches by Sunday night. This low will begin to move out on Monday, with a deep ridge building in over the region late Monday into Tuesday, bringing above normal temperatures and dry conditions through Wednesday. Tuesday looks to be the warmest day, with temperatures in the valleys reaching the upper 60s and low 70s.

Good model agreement exists with this pattern through next week, with only slight variation in the deterministic model`s evolution of the closed low. This accounts for the forecast uncertainty in precipitation this weekend, although all ensembles and deterministic solutions show light precipitation

in the region.

Hourly Forecast



Storm Event QA/QC Checklist – Phase I

STORM DATE	3/28/24			
A. Event and Data Completeness	**Yes**	**No**	**N/A**	**Notes**
1. Field data sheets filled out completely and clearly	X			
2. Field parameters reviewed, and any problems/issues addressed	X			
3. All samples collected as specified	X			
4. All samples delivered to lab promptly (review chain of custody rpts)	X			
5. Inconsistencies/clarifications discussed with sampling team member			X	
6. All analytical reports from lab received	X			
B. Validation and Verification Methods	**Yes**	**No**	**N/A**	**Notes**
1. Outliers and unexpected values discussed with lab			X	
2. Appropriate analytical methods used	X			
3. All lab QA samples were within method acceptance criteria	X			
4. All samples reviewed and data qualifiers assigned if needed	X			
5. Data quality objective achieved	X			

C. Specific Storm and Sample QA/QC Criteria	Lucky	Whitewater	Main	Americana	AS_6	Program Criteria	Met	Qualify	Reject
1. Antecedent dry period (inches in previous 72-hours)	0.01	0.01	0.00	0.00/0.02	0.04/0.02	< 0.11" in 72 hrs	X		
2. Precipitation (inches)	0.53	0.59	0.53	0.53/0.56	0.53/0.56	> 0.10"	X		
3. Sampled amount (% of total run-off)	—	82%	77%	—	—	>= 75% or >= 6 hrs: no qualifier >= 50% and <75%: qualify < 50%: reject	X		
4. Composite sample duration (hours)	—	13	11	—	—				
4. Ecoli sample holding time (hours)	—	—	7.0	7.0	6.5	<=8 hrs: no qualifier >8 and <=16 hrs.: qualify >16 hrs.: reject	X		
5. Filtering of samples for dissolved parameter analysis (hours)	—	2.5	5.0	—	—	<= 24 hrs: no qualifier > 24 hrs.: reject	X		

D. Notes

Reviewed by Steven Turner **Date** 5/16/24

Approved by Monica Lowe **Date** 5/17/24

Storm Runoff Estimates and Trigger Volumes

Step 1. Enter runoff coefficients in yellow cells.
Step 2. Enter expected precipitation depth (in) in blue cell.
Step 3. Read trigger volumes (**bold**) in green cells.

Expected Precipitation Depth = 0.11
Aliquots per Sample = 17

Site	Area (ac)	Using RC calculated from flow data		
		RC	Expected Vol (ft^3)	Trigger Vol (ft^3)
Lucky	105	0.157	6582.5	**387**
Whitewater	498	0.069	13621.3	**801**
Main	79	0.246	7760.0	**456**
Main Alt	60	0.200	4791.6	**282**
Americana	875	0.144	50311.8	**2960**
AS_6	204	0.046	3747.0	**220**
State	34	0.160	2172.2	**128**

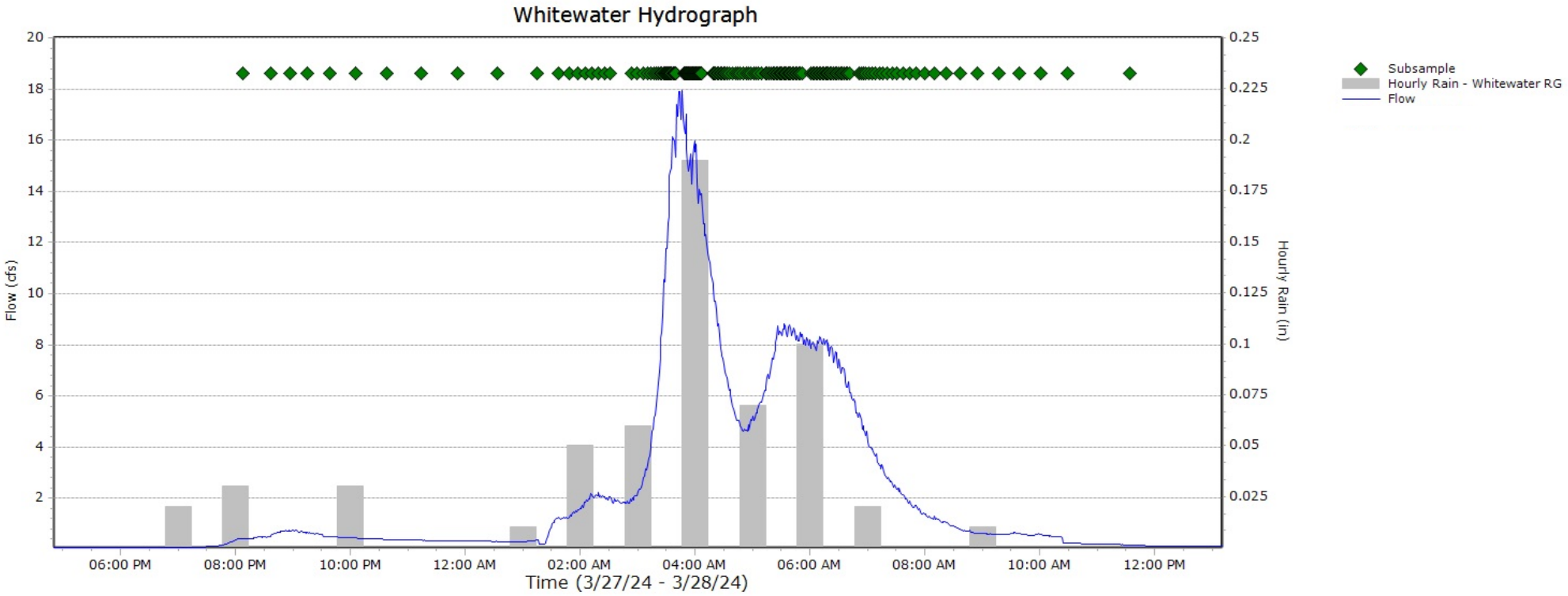
Notes:

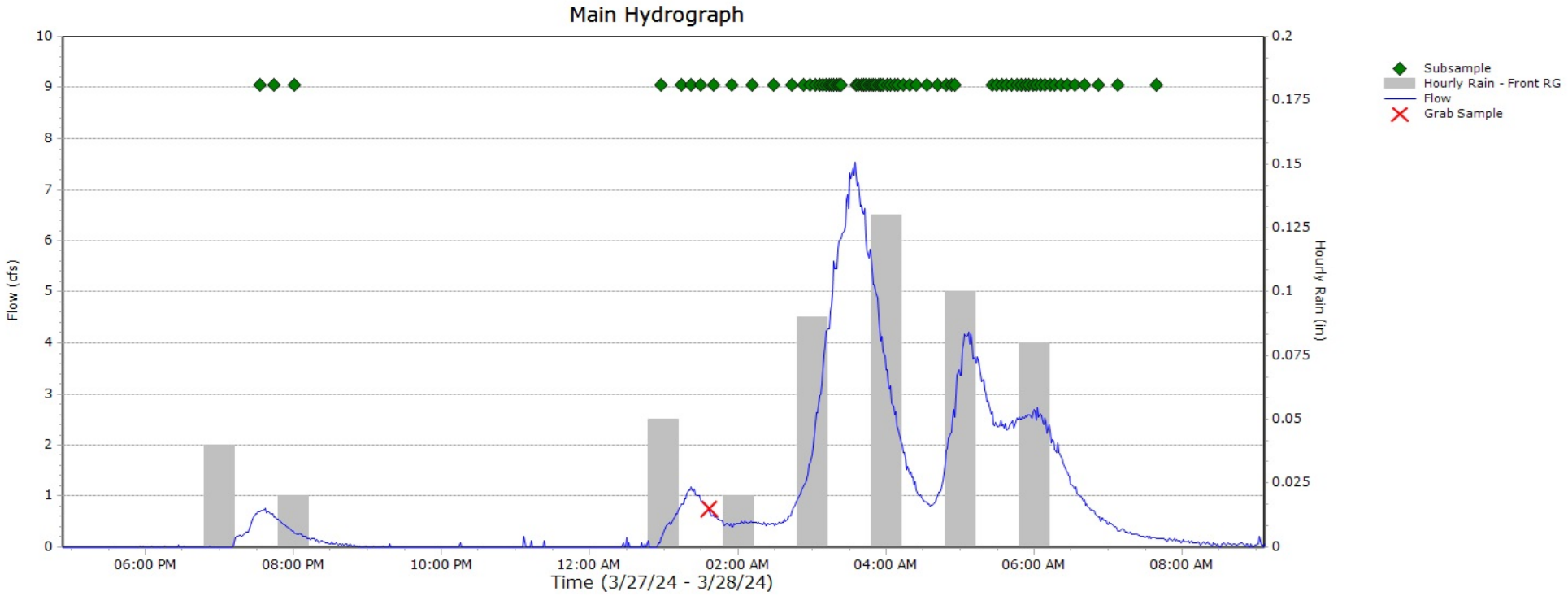
Calculated RC = Average (precip (ft) / [volume (ft^3) x area (ft^2)])

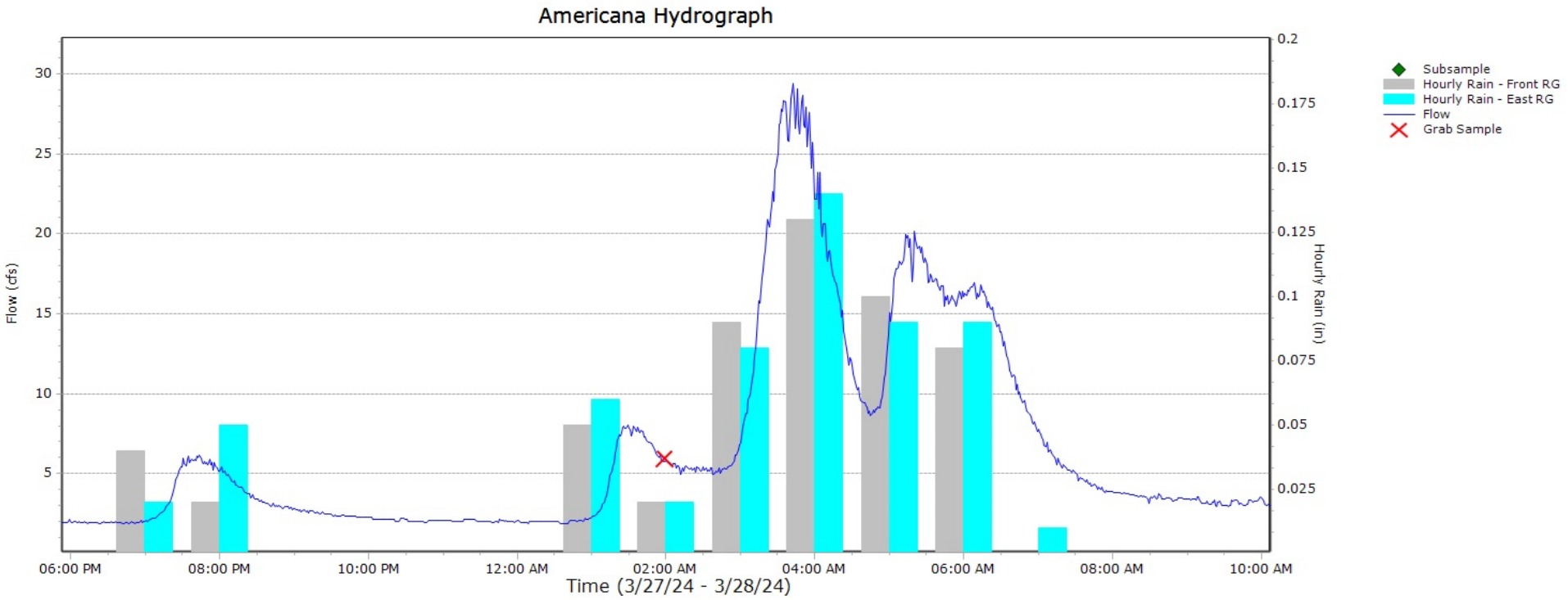
Where precip (ft) is the measured amount from local rain guage, and volume (ft^3) is the measured discharge, and area (ft^2) is the watershed area

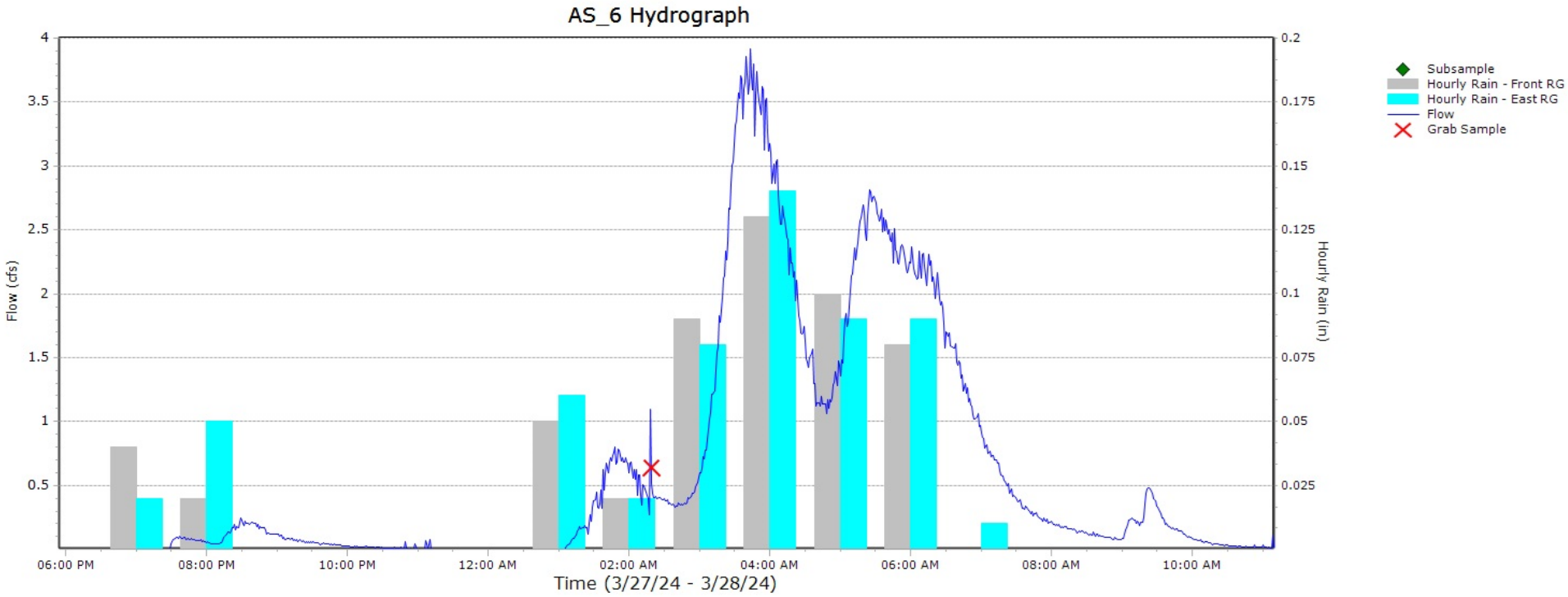
Expected volume (ft^3) = RC x expected precip (ft) x area (ft^2)

Attachment B: Storm Event Hydrographs


Whitewater Hydrograph
Flow (cfs)
Hourly Rain (in)
Time (3/27/24 - 3/28/24)
06:00 PM
08:00 PM
10:00 PM
12:00 AM
02:00 AM
04:00 AM
06:00 AM
08:00 AM
10:00 AM
12:00 PM
Subsample
Hourly Rain - Whitewater RG
Flow


Main Hydrograph
Flow (cfs)
Hourly Rain (in)
Time (3/27/24 - 3/28/24)
06:00 PM
08:00 PM
10:00 PM
12:00 AM
02:00 AM
04:00 AM
06:00 AM
08:00 AM
Subsample
Hourly Rain - Front RG
Flow
Grab Sample


Americana Hydrograph
Flow (cfs)
Hourly Rain (in)
Time (3/27/24 - 3/28/24)
06:00 PM
08:00 PM
10:00 PM
12:00 AM
02:00 AM
04:00 AM
06:00 AM
08:00 AM
10:00 AM
Subsample
Hourly Rain - Front RG
Hourly Rain - East RG
Flow
Grab Sample


AS_6 Hydrograph
Flow (cfs)
Hourly Rain (in)
Time (3/27/24 - 3/28/24)
06:00 PM
08:00 PM
10:00 PM
12:00 AM
02:00 AM
04:00 AM
06:00 AM
08:00 AM
10:00 AM
Subsample
Hourly Rain - Front RG
Hourly Rain - East RG
Flow
Grab Sample

Attachment C: Field Forms

Set Up/ Shut Down Form – ISCO (Whitewater, Americana, State)

TATION: Whitewater

SET UP

Personnel: KC, ST

Date/Time On-Site: 3/27/24 1315

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1315	2.21	0.07	0.25	←

Enable Condition:	3.3
Hysteresis:	1
Flow Pulse Interval:	800cf

On-Site

- ☒ Replace flowmeter battery, install sampler battery
- ☒ Perform decon. cycle
- ☒ Install 15L sample bottle, with ice
- ☒ Leave bottle lid at site, in a clean re-sealable plastic bag
- ☒ Set sampler program parameters
- ☒ Check date/time on sampler
- ☒ Verify all cable and tubing connections
- ☒ Verify sampler program is running

Flowlink (Refer to PG 411 or PG 412, if needed)

- ☒ Direct or Remote; Date/time 3/27/24 1327
- ☒ Retrieve data and review recent flow history
- ☒ Change Wireless Power Control to Storm Event
- ☒ Change Data Storage Rates to 1 minute for Level, Velocity, Total Flow, and Flow Rate
- ☒ Enable Sampler: On Trigger, and set Sampler Enable equation
- ☒ Set Sampler Pacing to Flow Paced, and set trigger volume

Comments:

offsite: 3/27/24 1338

SHUT DOWN

Personnel: ST

Date/Time On-Site: 3/29/24 1209

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
12:09	2.13	0.09	0.33	–
	Downloaded to:	Stevens USB		

On-Site

- ☒ ~~Replace flowmeter battery~~
- ☒ Remove battery from sampler

Flowlink (Refer to Flowlink Instructions, if needed)

- ☒ Direct or Remote; Date/time 3/29 1210
- ☒ Retrieve data
- ☒ Change Wireless Power Control to Dry Weather
- ☒ Change Data Storage Rates to 15 minutes for Level, Velocity, Total Flow, and Flow Rate
- ☒ Enable Sampler: Never

Comments:

Composite Sample Collection

STATION: Whitewater **Bottle** 1 **of** 8

Personnel: ST, KC **Date/Time On-Site:** 3/28 2:35

☐ Halt sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	240328 - M1 - -WC
Approx Sample Volume (mL):	9500 mL
Clarity (ex. Clear, Cloudy, Silty):	Tan, Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	↓
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	3/27/24 2007	success	13	0148	success
2	2036		14	0157	
3	2056		15	0205	
4	2115		16	0213	
5	2138		17	0219	
6	2206		18	0225	
7	2238		19	0231	
8	2313		20	0238	Skipped
9	2352		21		
10	3/28/24 0033		22		
11	0115		23		
12	0137		24		

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☒ Keep flowmeter running
☐ Keep flowmeter running	☒ Install new 15L bottle; add ice
☐ Add ice to sample transport cooler	☒ Restart program from beginning
	Date/Time Restarted: 2:46 ~~3/28~~ 3/29
	☒ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: Whitewater **Bottle** 7 **of** 8

Personnel: KC, ST **Date/Time On-Site:** 3/28/24 0345

☒ Halt sampler program			
☐ Put lid on sample bottle; label sample bottle			
Sample ID:	240328-11	-WC	
Approx Sample Volume (mL):	14000 mL		
Clarity (ex. Clear, Cloudy, Silty):	Cloudy		
Color (ex. Clear, Gray, Tan, Brown, Black):	gray		
QA/QC Sample ID:		-103	(Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	3/28/24 0253	Success	13	3/28/24 0329	Success
2	0259		14	0330	
3	0305		15	0332	
4	0310		16	0333	
5	0313		17	0333	
6	0317		18	0334	
7	0319		19	0335	
8	0321		20	0336	
9	0323		21	0337	
10	0325		22	0338	
11	0326		23	0339	
12	0328		24	0340	

Comments:

Date/Time Off-Site: 3/28/24 0350

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☒ Keep flowmeter running
☐ Keep flowmeter running	☒ Install new 15L bottle; add ice
☐ Add ice to sample transport cooler	☒ Restart program from beginning
	Date/Time Restarted: 0347 3/28
	☒ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Revised 240123 KC

Composite Sample Collection

STATION: Whitewater **Bottle** 3 **of** 8

Personnel: KC, SS **Date/Time On-Site:** 3/28/24 415

☒ Halt sampler program	
☒ Put lid on sample bottle; label sample bottle	
Sample ID:	3 240328 - 11 -WC
Approx Sample Volume (mL):	11,000 mL
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Gray
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	3/28/24 0347	Success	13	3/28/24 357	Success
2	0348		14	358	
3	0349		15	359	
4	350		16	400	
5	351		17	401	
6	352		18	402	
7	352		19	403	
8	353		20	404	
9	354		21	405	Power failed
10	355		22	406	
11	356		23	406	
12	356		24	407	

Comments:

Date/Time Off-Site: 3/28/24 0420

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☒ Keep flowmeter running
☐ Keep flowmeter running	☒ Install new 15L bottle; add ice
☐ Add ice to sample transport cooler	☒ Restart program from beginning
	Date/Time Restarted: 3/28/24 418
	☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: Whitewater **Bottle** 4 **of** 8

Personnel: LC, SS **Date/Time On-Site:** 3/28/24 434

☒ Halt sampler program	
☒ Put lid on sample bottle; label sample bottle	
Sample ID:	240326-11 -WC
Approx Sample Volume (mL):	13250 mL
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Grey
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	3/28/24 414	Success	13	439	Success
2	420		14	442	
3	421		15	445	
4	423		16	447	
5	424		17	450	
6	426 24		18	453	
7	428		19	456	
8	429		20	458	
9	431		21	501	
10	433		22	504	
11	435		23	506	
12	437	skipped	24	509	

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☑ Keep flowmeter running
☐ Keep flowmeter running	☑ Install new 15L bottle; add ice
☐ Add ice to sample transport cooler	☑ Restart program from beginning
	Date/Time Restarted: 3/28 512
	☑ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: Intake water **Bottle** 5 **of** 8

Personnel: KC, ST **Date/Time On-Site:** 3/28/24 0555

- [x] Halt sampler program
- [x] Put lid on sample bottle; label sample bottle

Sample ID:	240328-11	-WC
Approx Sample Volume (mL):	13250	
Clarity (ex. Clear, Cloudy, Silty):	Cloudy	
Color (ex. Clear, Gray, Tan, Brown, Black):	Gray	
QA/QC Sample ID:		-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	3/28/24 513	Success	13	3/28/24 534	Success
2	515		14	535	
3	517		15	537	
4	519		16	538	
5	521		17	540	
6	522		18	541	
7	524		19	543	
8	526		20	545	
9	527		21	546	
10	529		22	548	
11	531		23	549	
12	532		24	551	

Comments:

If sampling is complete:
- [ ] Power off sampler, if separate from flowmeter
- [ ] Keep flowmeter running
- [ ] Add ice to sample transport cooler

If continuing sampling (sample bottle change-out):
- [x] Keep flowmeter running
- [x] Install new 15L bottle; add ice
- [x] Restart program from beginning

Date/Time Restarted: 3/28/24 1602

- [x] Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

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Composite Sample Collection

STATION: Whitewater **Bottle** 6 **of** 8

Personnel: VC, ST **Date/Time On-Site:** 3/28/24

☒ Halt sampler program		
☒ Put lid on sample bottle; label sample bottle		
Sample ID:	240328-11	-WC
Approx Sample Volume (mL):	13250	
Clarity (ex. Clear, Cloudy, Silty):	Cloudy	
Color (ex. Clear, Gray, Tan, Brown, Black):	gray	
QA/QC Sample ID:		-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	3/28/24 1001	Success	13	3/28/24 1621	Success
2	1002		14	1622	
3	1004		15	1624	
4	1006		16	1626	
5	1008		17	1627	
6	1009		18	1629	
7	1011		19	1631	
8	1012		20	1633	
9	1014		21	1635	
10	1016		22	1637	
11	1017		23	1639	
12	1019		24	1641	

Comments:

If sampling is complete:	If continuing sampling (sample bottle change-out):
☐ Power off sampler, if separate from flowmeter	☒ Keep flowmeter running
☐ Keep flowmeter running	☒ Install new 15L bottle; add ice
☐ Add ice to sample transport cooler	☒ Restart program from beginning
	Date/Time Restarted: 3/28/24 1649
	☒ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: Whitewater **Bottle** 7 **of** 8

Personnel: KC, ST **Date/Time On-Site:** 3/28/24 1025

☑ Halt sampler program		
☑ Put lid on sample bottle; label sample bottle		
Sample ID:	240328 - 11	-WC
Approx Sample Volume (mL):	13250	
Clarity (ex. Clear, Cloudy, Silty):	Cloudy	
Color (ex. Clear, Gray, Tan, Brown, Black):	Tan	
QA/QC Sample ID:	-103	(Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	3/28/24 1050	Success	13	3/28/24 737	Success
2	653		14	743	
3	656		15	751	
4	658		16	759	
5	701		17	810	
6	705		18	821	
7	708		19	836	
8	712		20	855	
9	716		21	916	
10	721		22	938	
11	725		23	1001	
12	731		24	1029	

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☑ Keep flowmeter running
☐ Keep flowmeter running	☑ Install new 15L bottle; add ice
☐ Add ice to sample transport cooler	☑ Restart program from beginning
	Date/Time Restarted: 3/28/24 1033
	☑ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Revised 220727 TL

Composite Sample Collection

STATION: Whitewater **Bottle** 8 **of** 8

Personnel: KC, ST **Date/Time On-Site:** _____

☒ Halt sampler program	
☒ Put lid on sample bottle; label sample bottle	
Sample ID:	240328-11 -WC
Approx Sample Volume (mL):	800 mL
Clarity (ex. Clear, Cloudy, Silty):	Clear
Color (ex. Clear, Gray, Tan, Brown, Black):	Tan
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	3/28/24 1133	Success	13		
2			14		
3			15		
4			16		
5			17		
6			18		
7			19		
8			20		
9			21		
10			22		
11			23		
12			24		

Comments:

If sampling is complete:
- ☒ Power off sampler, if separate from flowmeter
- ☒ Keep flowmeter running
- ☒ Add ice to sample transport cooler

If continuing sampling (sample bottle change-out):
- ☐ Keep flowmeter running
- ☐ Install new 15L bottle; add ice
- ☐ Restart program from beginning

Date/Time Restarted: _____

- ☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

Revised 220727 TL

Set Up/ Shut Down Form – HACH (Lucky, Main, AS_6)

TATION: Main

SET UP

Personnel: KC, ST

Date/Time On-Site: 3/27/24 12:37

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1237	6.84	0.00	0.00	12.8

Enable Condition or Velocity Cutoff:	1.84
Deadband:	1
Trigger Volume:	3411

- [x] Install batteries on flowmeter and sampler
- [x] Perform decon. cycle
- [x] Install 15L sample bottle, with ice
- [x] Leave bottle lid at site, in a clean re-sealable plastic bag
- [x] Verify all cable and tubing connections
- [x] Check date and time on flowmeter and sampler
- [x] Set flowmeter program and sampler program parameters
- [x] Set logging interval to 1 minute
- [x] Start flowmeter program and sampler program
- [x] Verify running

Comments:
Replaced desiccant on flowmeter –

Flute 3/27/24 1300

SHUT DOWN

Personnel: ST

Date/Time On-Site: 3/29/24 12:22

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
12:22	7.45	0.00	0.00	–	12.6
Downloaded to:		Stevens USB			

If flow monitoring is complete:	**If continuing to monitor flow:**
☒ Halt program on flowmeter	☐ Replace flowmeter battery
☒ Download flowmeter data	☐ Reset logging interval to 15 minutes
☒ Remove flowmeter battery	☐ Change velocity cutoff to 0.02 fps
	☐ Start program
	☐ Verify running

Comments:

Composite Sample Collection

STATION: Main
Personnel: ST. KC
Bottle 1 **of** 3
Date/Time On-Site: 3/28/24 1:30

☐ Halt sampler program		
☑ Put lid on sample bottle; label sample bottle		
Sample ID:	240325-12	-WC
Approx Sample Volume (mL):	4000 mL	
Clarity (ex. Clear, Cloudy, Silty):	Cloudy	
Color (ex. Clear, Gray, Tan, Brown, Black):	Gray	
QA/QC Sample ID:		-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	3/27/24 19:33	Success	13	3/28 00:53	Success
2	19:44		14	02:59	
3	20:06		15	03:03	
4	3/28 00:58		16	03:06	
5	01:14		17	03:09	
6	01:22		18	03:12	
7	01:30		19	03:14	
8	01:40		20	03:16	
9	01:55		21	03:18	
10	02:12		22	03:20	
11	02:29		23	03:22	
12	02:44		24	03:24	

Comments:

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☑ Keep flowmeter running
☐ Keep flowmeter running	☑ Install new 15L bottle, add ice
☐ Add ice to sample transport cooler	☑ Restart program from beginning
	Date/Time Restarted: 3/28/24 0335
	☑ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Composite Sample Collection

STATION: Main **Bottle** 2 NC 3 **of** 3
Personnel: KC, ST **Date/Time On-Site:** 3/28/24 0426

☐ Halt sampler program		
☐ Put lid on sample bottle; label sample bottle		
Sample ID:	240328-12	-WC
Approx Sample Volume (mL):	14000 mL	
Clarity (ex. Clear, Cloudy, Silty):	Cloudy	
Color (ex. Clear, Gray, Tan, Brown, Black):	gray	
QA/QC Sample ID:	-103	(Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	3/28/24 0336	Success	13	401	Success
2	338	↓	14	~~404~~ ~~409~~ 409	↓
3	340	↓	15	407 410	↓
4	342	↓	16	410 414	↓
5	344	↓	17	414 419	↓
6	346	↓	18	419 425	↓
7	348	↓	19	425 ↓	↓
8	350	↓	20	433	↓
9	352	↓	21	442	↓
10	354	↓	22	449	↓
11	356	↓	23	453	↓
12	358	↓	24	456	↓

Comments:

Date/Time Off-Site: 3/28 523

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☒ Keep flowmeter running
☐ Keep flowmeter running	☒ Install new 15L bottle; add ice
☐ Add ice to sample transport cooler	☒ Restart program from beginning
	Date/Time Restarted: 3/28 523
	☒ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Revised 240123 KC

Composite Sample Collection

STATION: Main
Personnel: ST, KC
Bottle 3 **of** 3
Date/Time On-Site: 3/28/24 750

☒ Halt sampler program			
☒ Put lid on sample bottle; label sample bottle			
Sample ID:	240328-12	-WC	
Approx Sample Volume (mL):	12500 ml		
Clarity (ex. Clear, Cloudy, Silty):	Cloudy		
Color (ex. Clear, Gray, Tan, Brown, Black):	Gray		
QA/QC Sample ID:		-103	(Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1	3/28/24 526	Success ~~609~~ KC	13	3/28/24 609	Success
2	530		14	613	
3	534		15	617	
4	538		16	622	
5	542		17	627	
6	546		18	633	
7	550		19	641	
8	553		20	652	
9	556		21	708	
10	559		22	739	
11	602		23		
12	605		24		

Comments:

Date/Time Off-Site: 3/28/24 755

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☒ Keep flowmeter running
☐ Keep flowmeter running	☒ Install new 15L bottle; add ice
☐ Add ice to sample transport cooler	☒ Restart program from beginning
	Date/Time Restarted: 3/28/24 755
	☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Revised 240123 KC

Grab Sample Data Form

STATION: Main

Personnel: KC, ST **Date/Time On-Site:** 3/28/24 1:31

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
131	6.16	394.17 GPM	1.21	12.9	—	—

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	240328-12 -WG	3/28/24	0137	☒
Field Duplicate *E.Coli*	240328-12 -101	3/28/24	0138	☒
Field Blank *E.Coli*	240328-12 -001	3/28/24	0141	☒

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MPD9	0141	10.91	10.02	7.82	116.05

Sampler Current Status	
First Subsample Date/Time	3/27/24 1933
Last Subsample Date/Time	3/28/24 0130
# of Subsamples taken	7

Comments:

Revised 210924 TL

Set Up/ Shut Down Form – ISCO (Whitewater, Americana, State)

TATION: Americana

SET UP

Personnel: ST, KC

Date/Time On-Site: 3/27/24 ~~3:10pm~~ ST 16:10 15

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
16.12	5.99	1.99	2.200	12.29

Enable Condition:	
Hysteresis:	
Flow Pulse Interval:	

On-Site

- ☒ Replace flowmeter battery, install sampler battery
- ☒ Perform decon. cycle
- ☒ Install 15L sample bottle, with ice
- ☒ Leave bottle lid at site, in a clean re-sealable plastic bag
- ☐ Set sampler program parameters
- ☐ Check date/time on sampler
- ☐ Verify all cable and tubing connections
- ☐ Verify sampler program is running

Flowlink (Refer to PG 411 or PG 412, if needed)

- ☒ Direct or Remote; Date/time 16:14 3/27/24
- ☒ Retrieve data and review recent flow history
- ☒ Change Wireless Power Control to Storm Event
- ☒ Change Data Storage Rates to 1 minute for Level, Velocity, Total Flow, and Flow Rate
- ~~☐ Enable Sampler: On Trigger, and set Sampler Enable equation~~
- ~~☐ Set Sampler Pacing to Flow Paced, and set trigger volume~~

Comments: Installed 8L Blank composite. Set up flowmeter only. No composite needed.

offsite: 3/27/24 1529

SHUT DOWN

Personnel: ST

Date/Time On-Site: 3/29/24 12:35

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
12:36	6.52	2.35	2.299	12.07
	Downloaded to:	Stevens USB		

On-Site

- ☒ Replace flowmeter battery
- ☒ Remove battery from sampler

Flowlink (Refer to Flowlink Instructions, if needed)

- ☒ Direct or Remote; Date/time 3/29 12:36
- ☒ Retrieve data
- ☒ Change Wireless Power Control to Dry Weather
- ☒ Change Data Storage Rates to 15 minutes for Level, Velocity, Total Flow, and Flow Rate
- ☒ Enable Sampler: Never

Comments:

Composite Sample Collection

STATION: Americana **Bottle** 1 **of** 1

Personnel: _____ **Date/Time On-Site:** _____

☐ Halt sampler program	
☐ Put lid on sample bottle; label sample bottle	
Sample ID:	-WC
Approx Sample Volume (mL):	
Clarity (ex. Clear, Cloudy, Silty):	
Color (ex. Clear, Gray, Tan, Brown, Black):	
QA/QC Sample ID:	240328-14-002 ~~-103~~ (Time: 1200)

Subsample Information

Trigger #	Date/Time	Error Message/ Subsample Result	Trigger #	Date/Time	Error Message/ Subsample Result
1			13		
2			14		
3			15		
4			16		
5			17		
6			18		
7			19		
8			20		
9			21		
10			22		
11			23		
12			24		

Comments: QC Blank filed at 3/27/24 1510 - 1514. Removed at 10:08

If sampling is complete:	**If continuing sampling (sample bottle change-out):**
☐ Power off sampler, if separate from flowmeter	☐ Keep flowmeter running
☐ Keep flowmeter running	☐ Install new 15L bottle; add ice
☐ Add ice to sample transport cooler	☐ Restart program from beginning
	Date/Time Restarted: _____
	☐ Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	**3.0"**	3500 mL	**5.5"**	7250 mL	**8.0"**	11000 mL	**10.5"**	14750 mL
1.0"	800 mL	**3.5"**	4250 mL	**6.0"**	8000 mL	**8.5"**	11750 mL	**11.0"**	15500 mL
1.5"	1400 mL	**4.0"**	5000 mL	**6.5"**	8750 mL	**9.0"**	12500 mL	**11.5"**	16250 mL
2.0"	2000 mL	**4.5"**	5750 mL	**7.0"**	9500 mL	**9.5"**	13250 mL	**After 12"**	1" = 1500 mL
2.5"	2750 mL	**5.0"**	6500 mL	**7.5"**	10250 mL	**10.0"**	14000 mL	**Lab min**	8,000 mL

Grab Sample Data Form

STATION: Americana

Personnel: KC, ST **Date/Time On-Site:** 3/28/24 0153

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
0156	9.94	6.33	3.368	12.06	—	—

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	240328-14 -WG	3/28/24	0159	☒
Field Duplicate *E.Coli*	-101			☐
Field Blank *E.Coli*	-001			☐

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP089	0202	9.79	10.57	7.28	255.40

Sampler Current Status	
First Subsample Date/Time	—
Last Subsample Date/Time	—
# of Subsamples taken	—

Comments: Not collecting composite sample for this site.

Revised 210924 TL

Set Up/ Shut Down Form – HACH (Lucky, Main, AS_6)

STATION: AS-6

SET UP

Personnel: KC, ST

Date/Time On-Site: 3/27/24 1444

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1449	0.00	0.00	0.00	12.4

Enable Condition or Velocity Cutoff:	—
Deadband:	—
Trigger Volume:	—

- [x] Install batteries on flowmeter and sampler
- [ ] Perform decon. cycle
- [ ] Install 15L sample bottle, with ice
- [ ] Leave bottle lid at site, in a clean re-sealable plastic bag
- [ ] Verify all cable and tubing connections
- [x] Check date and time on flowmeter and sampler
- [x] Set flowmeter program and sampler program parameters
- [x] Set logging interval to 1 minute
- [x] Start flowmeter program and sampler program
- [x] Verify running

Comments:
Set up flowmeter only. No composite for this site.

offsite: 1451

SHUT DOWN

Personnel: ST

Date/Time On-Site: 3/29/24 13:29

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
13:29	0.000	0.000	0.000	39,608	12.4
	Downloaded to:	Rugged			

If flow monitoring is complete:	If continuing to monitor flow:
[x] Halt program on flowmeter	[ ] Replace flowmeter battery
[x] Download flowmeter data	[ ] Reset logging interval to 15 minutes
[x] Remove flowmeter battery	[ ] Change velocity cutoff to 0.02 fps
	[ ] Start program
	[ ] Verify running

Comments:

Revised 231009 ML

Grab Sample Data Form

STATION: AS-6

Personnel: KC, ST **Date/Time On-Site:** 3/28/24 0210

Flow Meter Current Status					
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Rainfall (in) (Whitewater Only)
0214	6.710	0.46	0.69	12.3	—

Grab Information				
	Sample ID	Date	Time	Labeled?
Site *E.Coli*	240328-206-WG	3/28/24	2:19	☑
Field Duplicate *E.Coli*	-101			☐
Field Blank *E.Coli*	-001			☐

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP09	2:25	7.74	9.92	7.60	108.59

Sampler Current Status	
First Subsample Date/Time	—
Last Subsample Date/Time	—
# of Subsamples taken	—

Comments: No composite taken at this site.

Date/Time Off-Site: 3/28/24 2:26

Revised 240123 KC

Attachment D: Storm Event Analytical Reports

Report Date: 05/02/2024 14:28

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00338-01	ACST1B	240328-12-WG	Water		03/28/2024	03/28/2024
AC00338-02	ACST1B	240328-12-101	Water		03/28/2024	03/28/2024
AC00338-03	ACST1B	240328-12-001	Water		03/28/2024	03/28/2024
AC00338-04	ACST1B	240328-14-WG	Water		03/28/2024	03/28/2024

Report Date: 05/02/2024 14:28

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240328-12-WG
Date/Time Collected:	03/28/2024 01:37		
Lab Number:	AC00338-01	Sample Collector:	S.T
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B241140	21.6	MPN/100 mL	1.0	1.0	IDEXX - Colilert	03/28/24 08:46	3/29/24 10:00	KMR	
Wet Chemistry										
Chlorine Screen	B241146	Absent				SM 4500-CL G-2000 mod	03/28/24	3/28/24 8:26	ALM	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 05/02/2024 14:28

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240328-12-101
Date/Time Collected:	03/28/2024 12:00		
Lab Number:	AC00338-02	Sample Collector:	S.T
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B241140	17.3	MPN/100 mL	1.0	1.0	IDEXX - Colilert	03/28/24 08:46	3/29/24 10:00	KMR	
Wet Chemistry										
Chlorine Screen	B241146	Absent				SM 4500-CL G-2000 mod	03/28/24	3/28/24 8:26	ALM	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 05/02/2024 14:28

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240328-12-001
Date/Time Collected:	03/28/2024 12:00		
Lab Number:	AC00338-03	Sample Collector:	S.T
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B241140	<1.0	MPN/100 mL	1.0	1.0	IDEXX - Colilert	03/28/24 08:46	3/29/24 10:00	KMR	U
Wet Chemistry										
Chlorine Screen	B241146	Absent				SM 4500-CL G-2000 mod	03/28/24	3/28/24 8:26	ALM	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 05/02/2024 14:28

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
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Analysis Report

Location:	ACST1B	Location Description:	240328-14-WG
Date/Time Collected:	03/28/2024 01:59		
Lab Number:	AC00338-04	Sample Collector:	S.T
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B241140	365.4	MPN/100 mL	1.0	1.0	IDEXX - Colilert	03/28/24 08:46	3/29/24 10:00	KMR	
Wet Chemistry										
Chlorine Screen	B241146	Absent				SM 4500-CL G-2000 mod	03/28/24	3/28/24 8:26	ALM	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
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Fax (208) 608-7319

Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Microbiology									
Batch: B241140									
Blank (B241140-BLK1)									
E. Coli	Absent						03/29/2024	KMR	
LCS (B241140-BS1)									
E. Coli				Present			03/29/2024	KMR	
Duplicate (B241140-DUP1)	Source ID: LS01907-10								
E. Coli					Pass	128	03/29/2024	KMR	

Report Date: 05/02/2024 14:28

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Notes and Definitions

Item	Definition
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Kate Harris
Interim Water Quality Laboratory Manager

Ada County Highway District

Attn: Steven Turner
3775 Adams Street
Garden City, Idaho 83714–6418
Tel. (208) 387–6269
Fax (208) 387–6391
Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Kristen Chisholm
Steven Turner

Lab#	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	E. Coli - IDEXX Colilert	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3- D	Total Containers
00338-01	3/28/24		0137		240328-12-WG	ST	X	X											X					1
-02	3/28/24		1200		240328-12-101	ST	X	X											X					1
-03	3/28/24		1200		240328-12-001	ST	X	X											X					1
-04	3/23/24		0159		240328-14-WG	ST	X	X											X					1

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
Kristen Chisholm	3/28/24 0814	3/28/24 0816	

coc wal-pi

Ar 00338 Ar 00338

Report Date: 05/02/2024 14:28

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00339-01	ACST1B	240328-206-WG	Water		03/28/2024	03/28/2024

Report Date: 05/02/2024 14:28

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1B	Location Description:	240328-206-WG
Date/Time Collected:	03/28/2024 02:19		
Lab Number:	AC00339-01	Sample Collector:	S.T
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Microbiology										
E. Coli	B241140	387.3	MPN/100 mL	1.0	1.0	IDEXX - Colilert	03/28/24 08:46	3/29/24 10:00	KMR	
Wet Chemistry										
Chlorine Screen	B241146	Absent				SM 4500-CL G-2000 mod	03/28/24	3/28/24 8:26	ALM	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 05/02/2024 14:28

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Microbiology									
Batch: B241140									
Blank (B241140-BLK1)									
E. Coli	Absent						03/29/2024	KMR	
LCS (B241140-BS1)									
E. Coli				Present			03/29/2024	KMR	
Duplicate (B241140-DUP1)	Source ID: LS01907-10								
E. Coli					Pass	128	03/29/2024	KMR	

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Report Date: 05/02/2024 14:28

Notes and Definitions

Item	Definition

No notes entered.

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Kate Harris
Interim Water Quality Laboratory Manager

Ada County Highway District

Attn: Steven Turner
3775 Adams Street
Garden City, Idaho 83714–6418
Tel. (208) 387–6269
Fax (208) 387–6391

Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Kristen Christiansen
Steven Turner

Lab#	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	E. Coli - IDEXX Colilert	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3- D	Total Containers
00339-01	3/28/24		0219		240328-206-WG	ST	X	X												X					1

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
Kristen Christiansen	3/28/24 0814	[signature] 3/26/24 0814	

AC00339 Ar 00339

Report Date: 05/02/2024 14:36

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00341-01	ACST1C	240328-11-WC	Water		03/28/2024	03/28/2024

Report Date: 05/02/2024 14:36

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location:	ACST1C	Location Description:	240328-11-WC
Date/Time Collected:	03/27/2024 20:07 - 03/28/2024 11:33		
Lab Number:	AC00341-01	Sample Collector:	K.C
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
ımmonia, as N	B241161	0.236	mg/L	0.0450	0.0450	Timberline Ammonia-001	03/29/24	3/29/24 11:19	ALN	
}OD5	B241168	8.20	mg/L	2.00	2.00	SM 5210 B-2016	03/29/24	4/3/24 9:59	ALM	
;hloride	B241409	14.9	mg/L	0.0150	0.0150	EPA 300.0, Rev. 2.1 (1993)	04/18/24	4/18/24 15:37	SMC	
;OD	B241167	84.0	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	03/29/24	3/29/24 9:37	RKT	
Jitrate-Nitrite, as N	B241189	0.277	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	04/01/24	4/1/24 14:29	JAL	
'KN	B241263	1.63	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	04/04/24	4/5/24 12:53	EDM	
;otal Dissolved Solids	B241163	76.0	mg/L	20.0	20.0	SM 2540 C-2015	03/28/24	3/30/24 15:18	BAK	
;otal Suspended Solids	B241172	131	mg/L	0.900	0.900	SM 2540 D-2015	03/29/24	3/29/24 10:10	SMC	
'urbidity	B241159	26.2	NTU	0.3	0.3	EPA 180.1, Rev. 2.0 (1993)	03/28/24	3/28/24 14:35	LRF	
Dissolved Wet Chemistry										
)rthophosphate, as P	B241173	0.131	mg/L	3.00E-3	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	03/29/24	3/29/24 13:02	JAL	
Total Metals										
Mercury	B241233	0.0151	ug/L	0.0100	0.0100	EPA 245.1	04/04/24	4/5/24 7:58	SAS	
ırsenic	B241177	2.0	ug/L	0.070	0.070	EPA 200.8	04/13/24	4/14/24 17:54	DMW	
;admium	B241177	0.074	ug/L	0.010	0.010	EPA 200.8	04/13/24	4/14/24 17:54	DMW	
;alcium	B241226	7.94	mg/L	0.0400	0.0400	EPA 200.7	04/03/24	4/11/24 17:34	EDM	
.ead	B241177	5.8	ug/L	0.010	0.010	EPA 200.8	04/13/24	4/14/24 17:54	DMW	
Magnesium	B241226	2930	ug/L	80.0	80.0	EPA 200.7	04/03/24	4/11/24 17:34	EDM	
'hosphorus as P	B241226	0.318	mg/L	0.0120	0.0120	EPA 200.7	04/03/24	4/11/24 17:34	EDM	
Hardness	B241226	31.9	mg/L	0.100	0.100	SM 2340 B-2011	04/03/24	4/11/24 17:34	EDM	
Dissolved Metals										
;admium	B241178	<0.0100	ug/L	0.010	0.010	EPA 200.8	04/04/24	4/4/24 16:00	DMW	U
;opper	B241178	1.9	ug/L	0.15	0.15	EPA 200.8	04/04/24	4/4/24 16:00	DMW	
.ead	B241178	0.097	ug/L	9.00E-3	9.00E-3	EPA 200.8	04/04/24	4/4/24 16:00	DMW	
:inc	B241178	9.8	ug/L	0.50	0.50	EPA 200.8	04/04/24	4/4/24 16:00	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

Report Date: 05/02/2024 14:36

Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry									
Batch: B241159									
Blank (B241159-BLK1)									
Turbidity	<0.3	NTU					03/28/2024	LRF	U
LCS (B241159-BS1)									
Turbidity			102	90-110			03/28/2024	LRF	
Duplicate (B241159-DUP1) Source ID: AC00340-01									
Turbidity					0.809	25	03/28/2024	LRF	
Batch: B241161									
Blank (B241161-BLK1)									
Ammonia, as N	<0.045	mg/L					03/29/2024	ALN	U
Blank (B241161-BLK2)									
Ammonia, as N	<0.045	mg/L					03/29/2024	ALN	U
LCS (B241161-BS1)									
Ammonia, as N			99.1	87-104			03/29/2024	ALN	
Duplicate (B241161-DUP1) Source ID: WB03028-08									
Ammonia, as N					0.615	20	03/29/2024	ALN	D
Matrix Spike (B241161-MS1) Source ID: WB03028-08									
Ammonia, as N			101	84-115			03/29/2024	ALN	D
Matrix Spike (B241161-MS2) Source ID: EP00320-01									
Ammonia, as N			101	84-115			03/29/2024	ALN	
Matrix Spike (B241161-MS3) Source ID: AC00341-01									
Ammonia, as N			102	84-115			03/29/2024	ALN	
Matrix Spike Dup (B241161-MSD1) Source ID: WB03028-08									
Ammonia, as N			99.6	84-115	0.840	20	03/29/2024	ALN	D
Batch: B241163									
Blank (B241163-BLK1)									
Total Dissolved Solids	<20	mg/L					03/30/2024	BAK	U
LCS (B241163-BS1)									
Total Dissolved Solids			99.3	90-110			03/30/2024	BAK	
Duplicate (B241163-DUP1) Source ID: RW00064-08									
Total Dissolved Solids					7.62	10	03/30/2024	BAK	

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Quality Control Report
Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Net Chemistry (Continued)									
Batch: B241167									
Blank (B241167-BLK1)									
COD	<7	mg/L					03/29/2024	RKT	U
LCS (B241167-BS1)									
COD			98.3	90-110			03/29/2024	RKT	
Duplicate (B241167-DUP1) Source ID: AC00341-01									
COD					3.64	10	03/29/2024	RKT	
Batch: B241168									
Blank (B241168-BLK1)									
BOD5	<2	mg/L					04/03/2024	ALM	U
LCS (B241168-BS1)									
BOD5			103	84.6-115.4			04/03/2024	ALM	
LCS (B241168-BS2)									
BOD5			106	84.6-115.4			04/03/2024	ALM	
Duplicate (B241168-DUP1) Source ID: LS01908-02									
BOD5					3.16	30	04/03/2024	ALM	
Batch: B241172									
Blank (B241172-BLK1)									
Total Suspended Solids	<0.9	mg/L					03/29/2024	SMC	U
LCS (B241172-BS1)									
Total Suspended Solids			91.2	90-110			03/29/2024	SMC	
Duplicate (B241172-DUP1) Source ID: LS01908-02									
Total Suspended Solids					0.951	20	03/29/2024	SMC	
Batch: B241189									
Blank (B241189-BLK1)									
Nitrate-Nitrite, as N	<0.025	mg/L					04/01/2024	JAL	U
LCS (B241189-BS1)									
Nitrate-Nitrite, as N			96.2	90-110			04/01/2024	JAL	
Duplicate (B241189-DUP1) Source ID: AC00340-01									
Nitrate-Nitrite, as N					2.37	10	04/01/2024	JAL	
Matrix Spike (B241189-MS1) Source ID: AC00340-01									
Nitrate-Nitrite, as N			97.6	90-110			04/01/2024	JAL	
Matrix Spike Dup (B241189-MSD1) Source ID: AC00340-01									
Nitrate-Nitrite, as N			96.8	90-110	0.678	10	04/01/2024	JAL	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B241263									
Blank (B241263-BLK1)									
TKN	<0.1	mg/L					04/05/2024	EDM	U
Blank (B241263-BLK2)									
TKN	<0.1	mg/L					04/05/2024	EDM	U
LCS (B241263-BS1)									
TKN			98.7	80-120			04/05/2024	EDM	
LCS (B241263-BS2)									
TKN			95.9	80-120			04/05/2024	EDM	
Duplicate (B241263-DUP1) Source ID: AC00341-01									
TKN					4.82	20	04/05/2024	EDM	
Duplicate (B241263-DUP2) Source ID: RW00065-02									
TKN					0.416	20	04/05/2024	EDM	D
Duplicate (B241263-DUP3) Source ID: RW00065-07									
TKN					3.97	20	04/05/2024	EDM	D
Matrix Spike (B241263-MS1) Source ID: AC00341-01									
TKN			102	80-120			04/05/2024	EDM	
Matrix Spike (B241263-MS2) Source ID: RW00065-02									
TKN			101	80-120			04/05/2024	EDM	D
Matrix Spike (B241263-MS3) Source ID: RW00065-07									
TKN			88.7	80-120			04/05/2024	EDM	D
Matrix Spike Dup (B241263-MSD1) Source ID: AC00341-01									
TKN			97.7	80-120	3.03	20	04/05/2024	EDM	
Matrix Spike Dup (B241263-MSD2) Source ID: RW00065-02									
TKN			98.7	80-120	1.20	20	04/05/2024	EDM	D
Matrix Spike Dup (B241263-MSD3) Source ID: RW00065-07									
TKN			95.8	80-120	3.01	20	04/05/2024	EDM	D
Batch: B241409									
Blank (B241409-BLK1)									
Chloride	<0.015	mg/L					04/18/2024	SMC	U
Blank (B241409-BLK2)									
Chloride	<0.015	mg/L					04/19/2024	SMC	U
Blank (B241409-BLK3)									
Chloride	<0.015	mg/L					04/19/2024	SMC	U
LCS (B241409-BS1)									
Chloride			96.8	90-110			04/18/2024	SMC	
LCS (B241409-BS2)									
Chloride			96.2	90-110			04/18/2024	SMC	
LCS (B241409-BS3)									
Chloride			96.3	90-110			04/19/2024	SMC	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B241409 (Continued)									
Duplicate (B241409-DUP1) Source ID: AC00340-01									
Chloride					0.0752	10	04/18/2024	SMC	
Duplicate (B241409-DUP2) Source ID: RW00065-13									
Chloride					0.328	10	04/18/2024	SMC	D
Duplicate (B241409-DUP4) Source ID: RW00069-11									
Chloride					0.239	10	04/19/2024	SMC	
Duplicate (B241409-DUP5) Source ID: RW00070-08									
Chloride					0.923	10	04/19/2024	SMC	D
Duplicate (B241409-DUP6) Source ID: RW00067-10RE1									
Chloride					0.341	10	04/20/2024	SMC	D
Matrix Spike (B241409-MS1) Source ID: AC00340-01									
Chloride			97.9	90-110			04/18/2024	SMC	
Matrix Spike (B241409-MS2) Source ID: RW00065-13									
Chloride			96.8	90-110			04/18/2024	SMC	D
Matrix Spike (B241409-MS4) Source ID: RW00069-11									
Chloride			98.8	90-110			04/19/2024	SMC	
Matrix Spike (B241409-MS5) Source ID: RW00070-08									
Chloride			98.2	90-110			04/19/2024	SMC	D
Matrix Spike (B241409-MS6) Source ID: RW00067-10RE1									
Chloride			95.5	90-110			04/20/2024	SMC	D
Matrix Spike Dup (B241409-MSD1) Source ID: AC00340-01									
Chloride			97.9	90-110	0.0119	10	04/18/2024	SMC	
Matrix Spike Dup (B241409-MSD2) Source ID: RW00065-13									
Chloride			97.0	90-110	0.105	10	04/19/2024	SMC	D
Matrix Spike Dup (B241409-MSD4) Source ID: RW00069-11									
Chloride			99.6	90-110	0.708	10	04/19/2024	SMC	
Matrix Spike Dup (B241409-MSD5) Source ID: RW00070-08									
Chloride			98.8	90-110	0.380	10	04/19/2024	SMC	D
Matrix Spike Dup (B241409-MSD6) Source ID: RW00067-10RE1									
Chloride			96.6	90-110	0.595	10	04/20/2024	SMC	D

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Dissolved Wet Chemistry									
Batch: B241173									
Blank (B241173-BLK1)									
Orthophosphate, as P	<0.003	mg/L					03/29/2024	JAL	U
Blank (B241173-BLK2)									
Orthophosphate, as P	<0.003	mg/L					03/29/2024	JAL	U
LCS (B241173-BS1)									
Orthophosphate, as P			97.4	90-110			03/29/2024	JAL	
LCS (B241173-BS2)									
Orthophosphate, as P			98.8	90-110			03/29/2024	JAL	
Duplicate (B241173-DUP1) Source ID: AC00340-01									
Orthophosphate, as P					0.151	10	03/29/2024	JAL	
Duplicate (B241173-DUP2) Source ID: RW00064-08									
Orthophosphate, as P					0.870	10	03/29/2024	JAL	D
Duplicate (B241173-DUP3) Source ID: WB03032-06									
Orthophosphate, as P					0.481	10	03/29/2024	JAL	D
Matrix Spike (B241173-MS1) Source ID: AC00340-01									
Orthophosphate, as P			99.1	90-110			03/29/2024	JAL	
Matrix Spike (B241173-MS2) Source ID: RW00064-08									
Orthophosphate, as P			99.9	90-110			03/29/2024	JAL	D
Matrix Spike (B241173-MS3) Source ID: WB03032-06									
Orthophosphate, as P			99.8	90-110			03/29/2024	JAL	D
Matrix Spike Dup (B241173-MSD1) Source ID: AC00340-01									
Orthophosphate, as P			98.4	90-110	0.459	10	03/29/2024	JAL	
Matrix Spike Dup (B241173-MSD2) Source ID: RW00064-08									
Orthophosphate, as P			101	90-110	0.438	10	03/29/2024	JAL	D
Matrix Spike Dup (B241173-MSD3) Source ID: WB03032-06									
Orthophosphate, as P			101	90-110	0.301	10	03/29/2024	JAL	D

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Quality Control Report
Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Total Metals									
Batch: B241177									
Blank (B241177-BLK1)									
Arsenic	<0.070	ug/L					04/14/2024	DMW	U
Cadmium	<0.010	ug/L					04/14/2024	DMW	U
Lead	<0.010	ug/L					04/14/2024	DMW	U
LCS (B241177-BS1)									
Arsenic			101	85-115			04/14/2024	DMW	
Cadmium			102	85-115			04/14/2024	DMW	
Lead			103	85-115			04/14/2024	DMW	
Duplicate (B241177-DUP1) Source ID: ES00308-04									
Arsenic					1.20	20	04/14/2024	DMW	
Cadmium					NR	20	04/14/2024	DMW	U
Lead					0.466	20	04/14/2024	DMW	
Matrix Spike (B241177-MS1) Source ID: ES00308-04									
Arsenic			100	70-130			04/14/2024	DMW	
Cadmium			101	70-130			04/14/2024	DMW	
Lead			101	70-130			04/14/2024	DMW	
Matrix Spike Dup (B241177-MSD1) Source ID: ES00308-04									
Arsenic			101	70-130	0.462	20	04/14/2024	DMW	
Cadmium			102	70-130	1.01	20	04/14/2024	DMW	
Lead			101	70-130	0.120	20	04/14/2024	DMW	
Batch: B241226									
Blank (B241226-BLK1)									
Calcium	<0.04	mg/L					04/11/2024	EDM	U
Magnesium	<80	ug/L					04/11/2024	EDM	U
Phosphorus as P	<0.012	mg/L			.		04/11/2024	EDM	U
LCS (B241226-BS1)									
Calcium			98.9	85-115			04/11/2024	EDM	
Magnesium			101	85-115			04/11/2024	EDM	
Phosphorus as P			102	85-115			04/11/2024	EDM	
Duplicate (B241226-DUP1) Source ID: AC00341-01									
Calcium					1.81	20	04/11/2024	EDM	
Magnesium					1.16	20	04/11/2024	EDM	
Phosphorus as P					2.27	20	04/11/2024	EDM	
Matrix Spike (B241226-MS1) Source ID: AC00341-01									
Calcium			100	70-130			04/11/2024	EDM	
Magnesium			102	70-130			04/11/2024	EDM	
Phosphorus as P			101	70-130			04/11/2024	EDM	
Matrix Spike Dup (B241226-MSD1) Source ID: AC00341-01									
Calcium			102	70-130	1.34	20	04/11/2024	EDM	
Magnesium			103	70-130	0.658	20	04/11/2024	EDM	
Phosphorus as P			103	70-130	1.62	20	04/11/2024	EDM	

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Quality Control Report
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Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Total Metals (Continued)									
Batch: B241233									
Blank (B241233-BLK1)									
Mercury	<0.01	ug/L					04/05/2024	SAS	U
LCS (B241233-BS1)									
Mercury			104	85-115			04/05/2024	SAS	
Duplicate (B241233-DUP1) Source ID: AC00340-01									
Mercury					47.0	20	04/05/2024	SAS	QC-02
Duplicate (B241233-DUP2) Source ID: BB03721-01									
Mercury					NR	20	04/05/2024	SAS	U
Matrix Spike (B241233-MS1) Source ID: AC00340-01									
Mercury			97.8	70-130			04/05/2024	SAS	
Matrix Spike (B241233-MS2) Source ID: BB03721-01									
Mercury			101	70-130			04/05/2024	SAS	
Matrix Spike (B241233-MS3) Source ID: EP00317-02RE1									
Mercury			75.9	70-130			04/05/2024	SAS	D
Matrix Spike Dup (B241233-MSD1) Source ID: AC00340-01									
Mercury			91.3	70-130	5.80	20	04/05/2024	SAS	
Matrix Spike Dup (B241233-MSD2) Source ID: BB03721-01									
Mercury			102	70-130	1.06	20	04/05/2024	SAS	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Dissolved Metals									
Batch: B241178									
Blank (B241178-BLK1)									
Cadmium	<0.010	ug/L					04/04/2024	DMW	U
Copper	<0.15	ug/L					04/04/2024	DMW	U
Lead	<0.0090	ug/L					04/04/2024	DMW	U
Zinc	<0.50	ug/L					04/04/2024	DMW	U
LCS (B241178-BS1)									
Cadmium			99.9	85-115			04/04/2024	DMW	
Copper			93.2	85-115			04/04/2024	DMW	
Lead			99.4	85-115			04/04/2024	DMW	
Zinc			94.5	85-115			04/04/2024	DMW	
Duplicate (B241178-DUP1) Source ID: AC00340-01									
Cadmium					NR	10	04/04/2024	DMW	U
Copper					0.527	10	04/04/2024	DMW	
Lead					2.01	10	04/04/2024	DMW	
Zinc					1.59	10	04/04/2024	DMW	
Matrix Spike (B241178-MS1) Source ID: AC00340-01									
Cadmium			102	70-130			04/04/2024	DMW	
Copper			91.6	70-130			04/04/2024	DMW	
Lead			98.4	70-130			04/04/2024	DMW	
Zinc			91.2	70-130			04/04/2024	DMW	
Matrix Spike Dup (B241178-MSD1) Source ID: AC00340-01									
Cadmium			102	70-130	0.490	10	04/04/2024	DMW	
Copper			91.9	70-130	0.188	10	04/04/2024	DMW	
Lead			98.3	70-130	0.146	10	04/04/2024	DMW	
Zinc			89.8	70-130	0.970	10	04/04/2024	DMW	

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Notes and Definitions

Item	Definition
D	Data reported from a dilution
QC-02	The RPD is greater than the method acceptance criteria. At least one of the values used to calculate the RPD, is less than or equal to the PQL.
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Kate Harris
Interim Water Quality Laboratory Manager

Ada County Highway District

Attn: Steven Turner
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Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Kristen Chisholm
Steven Turner

Lab#	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	~~E. Coli - IDEXX Colilert~~ Chlorides EPA 300.0	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
AC00341-01	3/27/24	3/28/24	2007	1133	240328-11-WC	KC	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	8

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
Kristen Chisholm	3/28/24 1314	3/28/24 1314	

AC00341

Report Date: 05/02/2024 14:37

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Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00340-01	ACST1C	240328-12-WC	Water		03/28/2024	03/28/2024
AC00340-02	ACST1C	240328-14-002	Water		03/28/2024	03/28/2024

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Analysis Report

Location:	ACST1C	Location Description:	240328-12-WC
Date/Time Collected:	03/27/2024 19:33 - 03/28/2024 07:39		
Lab Number:	AC00340-01	Sample Collector:	K.C
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B241161	0.293	mg/L	0.0450	0.0450	Timberline Ammonia-001	03/29/24	3/29/24 11:29	ALN	
BOD5	B241168	5.03	mg/L	2.00	2.00	SM 5210 B-2016	03/29/24	4/3/24 10:05	ALM	
Chloride	B241409	5.19	mg/L	0.0150	0.0150	EPA 300.0, Rev. 2.1 (1993)	04/18/24	4/18/24 13:51	SMC	
COD	B241167	104	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	03/29/24	3/29/24 9:37	RKT	
Nitrate-Nitrite, as N	B241189	0.151	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	04/01/24	4/1/24 14:23	JAL	
TKN	B241263	1.18	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	04/04/24	4/5/24 12:51	EDM	
Total Dissolved Solids	B241163	44.2	mg/L	20.0	20.0	SM 2540 C-2015	03/28/24	3/30/24 15:17	BAK	
Total Suspended Solids	B241172	91.7	mg/L	0.900	0.900	SM 2540 D-2015	03/29/24	3/29/24 10:11	SMC	
Turbidity	B241159	24.6	NTU	0.3	0.3	EPA 180.1, Rev. 2.0 (1993)	03/28/24	3/28/24 14:17	LRF	
Dissolved Wet Chemistry										
Orthophosphate, as P	B241173	0.0494	mg/L	3.00E-3	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	03/29/24	3/29/24 12:56	JAL	
Total Metals										
Mercury	B241233	0.0171	ug/L	0.0100	0.0100	EPA 245.1	04/04/24	4/5/24 7:41	SAS	
Arsenic	B241177	1.1	ug/L	0.070	0.070	EPA 200.8	04/13/24	4/14/24 17:49	DMW	
Cadmium	B241177	0.071	ug/L	0.010	0.010	EPA 200.8	04/13/24	4/14/24 17:49	DMW	
Calcium	B241226	2.99	mg/L	0.0400	0.0400	EPA 200.7	04/03/24	4/11/24 17:24	EDM	
Lead	B241177	5.9	ug/L	0.010	0.010	EPA 200.8	04/13/24	4/14/24 17:49	DMW	
Magnesium	B241226	1260	ug/L	80.0	80.0	EPA 200.7	04/03/24	4/11/24 17:24	EDM	
Phosphorus as P	B241226	0.145	mg/L	0.0120	0.0120	EPA 200.7	04/03/24	4/11/24 17:24	EDM	
Hardness	B241226	12.6	mg/L	0.100	0.100	SM 2340 B-2011	04/03/24	4/11/24 17:24	EDM	
Dissolved Metals										
Cadmium	B241178	<0.0100	ug/L	0.010	0.010	EPA 200.8	04/04/24	4/4/24 15:50	DMW	U
Copper	B241178	2.3	ug/L	0.15	0.15	EPA 200.8	04/04/24	4/4/24 15:50	DMW	
Lead	B241178	0.068	ug/L	9.00E-3	9.00E-3	EPA 200.8	04/04/24	4/4/24 15:50	DMW	
Zinc	B241178	14.7	ug/L	0.50	0.50	EPA 200.8	04/04/24	4/4/24 15:50	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

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Analysis Report

Location:	ACST1C	Location Description:	240328-14-002
Date/Time Collected:	03/28/2024 12:00		
Lab Number:	AC00340-02	Sample Collector:	K.C
Sample Type:	Composite	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared	Analyzed	Analyst Initials	Qualifier
Wet Chemistry										
Ammonia, as N	B241161	<0.0450	mg/L	0.0450	0.0450	Timberline Ammonia-001	03/29/24	3/29/24 11:26	ALN	U
BOD5	B241168	<2.00	mg/L	2.00	2.00	SM 5210 B-2016	03/29/24	4/3/24 10:05	ALM	U
Chloride	B241409	<0.0150	mg/L	0.0150	0.0150	EPA 300.0, Rev. 2.1 (1993)	04/18/24	4/18/24 17:23	SMC	U
COD	B241167	<7.00	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	03/29/24	3/29/24 9:37	RKT	U
Nitrate-Nitrite, as N	B241189	<0.0250	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	04/01/24	4/1/24 14:28	JAL	U
TKN	B241263	<0.100	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	04/04/24	4/5/24 12:52	EDM	U
Total Dissolved Solids	B241163	<20.0	mg/L	20.0	20.0	SM 2540 C-2015	03/28/24	3/30/24 15:18	BAK	U
Total Suspended Solids	B241172	<0.900	mg/L	0.900	0.900	SM 2540 D-2015	03/29/24	3/29/24 9:42	SMC	U
Turbidity	B241159	<0.3	NTU	0.3	0.3	EPA 180.1, Rev. 2.0 (1993)	03/28/24	3/28/24 14:43	LRF	U
Dissolved Wet Chemistry										
Orthophosphate, as P	B241173	<3.00E-3	mg/L	3.00E-3	3.00E-3	EPA 365.1, Rev. 2.0 (1993)	03/29/24	3/29/24 13:01	JAL	U
Total Metals										
Mercury	B241233	<0.0100	ug/L	0.0100	0.0100	EPA 245.1	04/04/24	4/5/24 7:54	SAS	U
Arsenic	B241177	<0.0700	ug/L	0.070	0.070	EPA 200.8	04/13/24	4/14/24 17:51	DMW	U
Cadmium	B241177	<0.0100	ug/L	0.010	0.010	EPA 200.8	04/13/24	4/14/24 17:51	DMW	U
Calcium	B241226	<0.0400	mg/L	0.0400	0.0400	EPA 200.7	04/03/24	4/11/24 17:31	EDM	U
Lead	B241177	<0.0100	ug/L	0.010	0.010	EPA 200.8	04/13/24	4/14/24 17:51	DMW	U
Magnesium	B241226	<80.0	ug/L	80.0	80.0	EPA 200.7	04/03/24	4/11/24 17:31	EDM	U
Phosphorus as P	B241226	<0.0120	mg/L	0.0120	0.0120	EPA 200.7	04/03/24	4/11/24 17:31	EDM	U
Hardness	B241226	<0.100	mg/L	0.100	0.100	SM 2340 B-2011	04/03/24	4/11/24 17:31	EDM	U
Dissolved Metals										
Cadmium	B241178	<0.0100	ug/L	0.010	0.010	EPA 200.8	04/04/24	4/4/24 15:47	DMW	U
Copper	B241178	<0.150	ug/L	0.15	0.15	EPA 200.8	04/04/24	4/4/24 15:47	DMW	U
Lead	B241178	<9.00E-3	ug/L	9.00E-3	9.00E-3	EPA 200.8	04/04/24	4/4/24 15:47	DMW	U
Zinc	B241178	<0.500	ug/L	0.50	0.50	EPA 200.8	04/04/24	4/4/24 15:47	DMW	U

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

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Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry									
Batch: B241159									
Blank (B241159-BLK1)									
Turbidity	<0.3	NTU					03/28/2024	LRF	U
LCS (B241159-BS1)									
Turbidity			102	90-110			03/28/2024	LRF	
Duplicate (B241159-DUP1) Source ID: AC00340-01									
Turbidity					0.809	25	03/28/2024	LRF	
Batch: B241161									
Blank (B241161-BLK1)									
Ammonia, as N	<0.045	mg/L					03/29/2024	ALN	U
Blank (B241161-BLK2)									
Ammonia, as N	<0.045	mg/L					03/29/2024	ALN	U
LCS (B241161-BS1)									
Ammonia, as N			99.1	87-104			03/29/2024	ALN	
Duplicate (B241161-DUP1) Source ID: WB03028-08									
Ammonia, as N					0.615	20	03/29/2024	ALN	D
Matrix Spike (B241161-MS1) Source ID: WB03028-08									
Ammonia, as N			101	84-115			03/29/2024	ALN	D
Matrix Spike (B241161-MS2) Source ID: EP00320-01									
Ammonia, as N			101	84-115			03/29/2024	ALN	
Matrix Spike (B241161-MS3) Source ID: AC00341-01									
Ammonia, as N			102	84-115			03/29/2024	ALN	
Matrix Spike Dup (B241161-MSD1) Source ID: WB03028-08									
Ammonia, as N			99.6	84-115	0.840	20	03/29/2024	ALN	D
Batch: B241163									
Blank (B241163-BLK1)									
Total Dissolved Solids	<20	mg/L					03/30/2024	BAK	U
LCS (B241163-BS1)									
Total Dissolved Solids			99.3	90-110			03/30/2024	BAK	
Duplicate (B241163-DUP1) Source ID: RW00064-08									
Total Dissolved Solids					7.62	10	03/30/2024	BAK	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B241167									
Blank (B241167-BLK1)									
COD	<7	mg/L					03/29/2024	RKT	U
LCS (B241167-BS1)									
COD			98.3	90-110			03/29/2024	RKT	
Duplicate (B241167-DUP1) Source ID: AC00341-01									
COD					3.64	10	03/29/2024	RKT	
Batch: B241168									
Blank (B241168-BLK1)									
BOD5	<2	mg/L					04/03/2024	ALM	U
LCS (B241168-BS1)									
BOD5			103	84.6-115.4			04/03/2024	ALM	
LCS (B241168-BS2)									
BOD5			106	84.6-115.4			04/03/2024	ALM	
Duplicate (B241168-DUP1) Source ID: LS01908-02									
BOD5					3.16	30	04/03/2024	ALM	
Batch: B241172									
Blank (B241172-BLK1)									
Total Suspended Solids	<0.9	mg/L					03/29/2024	SMC	U
LCS (B241172-BS1)									
Total Suspended Solids			91.2	90-110			03/29/2024	SMC	
Duplicate (B241172-DUP1) Source ID: LS01908-02									
Total Suspended Solids					0.951	20	03/29/2024	SMC	
Batch: B241189									
Blank (B241189-BLK1)									
Nitrate-Nitrite, as N	<0.025	mg/L					04/01/2024	JAL	U
LCS (B241189-BS1)									
Nitrate-Nitrite, as N			96.2	90-110			04/01/2024	JAL	
Duplicate (B241189-DUP1) Source ID: AC00340-01									
Nitrate-Nitrite, as N					2.37	10	04/01/2024	JAL	
Matrix Spike (B241189-MS1) Source ID: AC00340-01									
Nitrate-Nitrite, as N			97.6	90-110			04/01/2024	JAL	
Matrix Spike Dup (B241189-MSD1) Source ID: AC00340-01									
Nitrate-Nitrite, as N			96.8	90-110	0.678	10	04/01/2024	JAL	

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Quality Control Report
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Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B241263									
Blank (B241263-BLK1)									
TKN	<0.1	mg/L					04/05/2024	EDM	U
Blank (B241263-BLK2)									
TKN	<0.1	mg/L					04/05/2024	EDM	U
LCS (B241263-BS1)									
TKN			98.7	80-120			04/05/2024	EDM	
LCS (B241263-BS2)									
TKN			95.9	80-120			04/05/2024	EDM	
Duplicate (B241263-DUP1) Source ID: AC00341-01									
TKN					4.82	20	04/05/2024	EDM	
Duplicate (B241263-DUP2) Source ID: RW00065-02									
TKN					0.416	20	04/05/2024	EDM	D
Duplicate (B241263-DUP3) Source ID: RW00065-07									
TKN					3.97	20	04/05/2024	EDM	D
Matrix Spike (B241263-MS1) Source ID: AC00341-01									
TKN			102	80-120			04/05/2024	EDM	
Matrix Spike (B241263-MS2) Source ID: RW00065-02									
TKN			101	80-120			04/05/2024	EDM	D
Matrix Spike (B241263-MS3) Source ID: RW00065-07									
TKN			88.7	80-120			04/05/2024	EDM	D
Matrix Spike Dup (B241263-MSD1) Source ID: AC00341-01									
TKN			97.7	80-120	3.03	20	04/05/2024	EDM	
Matrix Spike Dup (B241263-MSD2) Source ID: RW00065-02									
TKN			98.7	80-120	1.20	20	04/05/2024	EDM	D
Matrix Spike Dup (B241263-MSD3) Source ID: RW00065-07									
TKN			95.8	80-120	3.01	20	04/05/2024	EDM	D
Batch: B241409									
Blank (B241409-BLK1)									
Chloride	<0.015	mg/L					04/18/2024	SMC	U
Blank (B241409-BLK2)									
Chloride	<0.015	mg/L					04/19/2024	SMC	U
Blank (B241409-BLK3)									
Chloride	<0.015	mg/L					04/19/2024	SMC	U
LCS (B241409-BS1)									
Chloride			96.8	90-110			04/18/2024	SMC	
LCS (B241409-BS2)									
Chloride			96.2	90-110			04/18/2024	SMC	
LCS (B241409-BS3)									
Chloride			96.3	90-110			04/19/2024	SMC	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B241409 (Continued)									
Duplicate (B241409-DUP1) Source ID: AC00340-01									
Chloride					0.0752	10	04/18/2024	SMC	
Duplicate (B241409-DUP2) Source ID: RW00065-13									
Chloride					0.328	10	04/18/2024	SMC	D
Duplicate (B241409-DUP4) Source ID: RW00069-11									
Chloride					0.239	10	04/19/2024	SMC	
Duplicate (B241409-DUP5) Source ID: RW00070-08									
Chloride					0.923	10	04/19/2024	SMC	D
Duplicate (B241409-DUP6) Source ID: RW00067-10RE1									
Chloride					0.341	10	04/20/2024	SMC	D
Matrix Spike (B241409-MS1) Source ID: AC00340-01									
Chloride			97.9	90-110			04/18/2024	SMC	
Matrix Spike (B241409-MS2) Source ID: RW00065-13									
Chloride			96.8	90-110			04/18/2024	SMC	D
Matrix Spike (B241409-MS4) Source ID: RW00069-11									
Chloride			98.8	90-110			04/19/2024	SMC	
Matrix Spike (B241409-MS5) Source ID: RW00070-08									
Chloride			98.2	90-110			04/19/2024	SMC	D
Matrix Spike (B241409-MS6) Source ID: RW00067-10RE1									
Chloride			95.5	90-110			04/20/2024	SMC	D
Matrix Spike Dup (B241409-MSD1) Source ID: AC00340-01									
Chloride			97.9	90-110	0.0119	10	04/18/2024	SMC	
Matrix Spike Dup (B241409-MSD2) Source ID: RW00065-13									
Chloride			97.0	90-110	0.105	10	04/19/2024	SMC	D
Matrix Spike Dup (B241409-MSD4) Source ID: RW00069-11									
Chloride			99.6	90-110	0.708	10	04/19/2024	SMC	
Matrix Spike Dup (B241409-MSD5) Source ID: RW00070-08									
Chloride			98.8	90-110	0.380	10	04/19/2024	SMC	D
Matrix Spike Dup (B241409-MSD6) Source ID: RW00067-10RE1									
Chloride			96.6	90-110	0.595	10	04/20/2024	SMC	D

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Dissolved Wet Chemistry									
Batch: B241173									
Blank (B241173-BLK1)									
Orthophosphate, as P	<0.003	mg/L					03/29/2024	JAL	U
Blank (B241173-BLK2)									
Orthophosphate, as P	<0.003	mg/L					03/29/2024	JAL	U
LCS (B241173-BS1)									
Orthophosphate, as P			97.4	90-110			03/29/2024	JAL	
LCS (B241173-BS2)									
Orthophosphate, as P			98.8	90-110			03/29/2024	JAL	
Duplicate (B241173-DUP1) Source ID: AC00340-01									
Orthophosphate, as P					0.151	10	03/29/2024	JAL	
Duplicate (B241173-DUP2) Source ID: RW00064-08									
Orthophosphate, as P					0.870	10	03/29/2024	JAL	D
Duplicate (B241173-DUP3) Source ID: WB03032-06									
Orthophosphate, as P					0.481	10	03/29/2024	JAL	D
Matrix Spike (B241173-MS1) Source ID: AC00340-01									
Orthophosphate, as P			99.1	90-110			03/29/2024	JAL	
Matrix Spike (B241173-MS2) Source ID: RW00064-08									
Orthophosphate, as P			99.9	90-110			03/29/2024	JAL	D
Matrix Spike (B241173-MS3) Source ID: WB03032-06									
Orthophosphate, as P			99.8	90-110			03/29/2024	JAL	D
Matrix Spike Dup (B241173-MSD1) Source ID: AC00340-01									
Orthophosphate, as P			98.4	90-110	0.459	10	03/29/2024	JAL	
Matrix Spike Dup (B241173-MSD2) Source ID: RW00064-08									
Orthophosphate, as P			101	90-110	0.438	10	03/29/2024	JAL	D
Matrix Spike Dup (B241173-MSD3) Source ID: WB03032-06									
Orthophosphate, as P			101	90-110	0.301	10	03/29/2024	JAL	D

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Total Metals									
Batch: B241177									
Blank (B241177-BLK1)									
Arsenic	<0.070	ug/L					04/14/2024	DMW	U
Cadmium	<0.010	ug/L					04/14/2024	DMW	U
Lead	<0.010	ug/L					04/14/2024	DMW	U
LCS (B241177-BS1)									
Arsenic			101	85-115			04/14/2024	DMW	
Cadmium			102	85-115			04/14/2024	DMW	
Lead			103	85-115			04/14/2024	DMW	
Duplicate (B241177-DUP1) Source ID: ES00308-04									
Arsenic					1.20	20	04/14/2024	DMW	
Cadmium					NR	20	04/14/2024	DMW	U
Lead					0.466	20	04/14/2024	DMW	
Matrix Spike (B241177-MS1) Source ID: ES00308-04									
Arsenic			100	70-130			04/14/2024	DMW	
Cadmium			101	70-130			04/14/2024	DMW	
Lead			101	70-130			04/14/2024	DMW	
Matrix Spike Dup (B241177-MSD1) Source ID: ES00308-04									
Arsenic			101	70-130	0.462	20	04/14/2024	DMW	
Cadmium			102	70-130	1.01	20	04/14/2024	DMW	
Lead			101	70-130	0.120	20	04/14/2024	DMW	
Batch: B241226									
Blank (B241226-BLK1)									
Calcium	<0.04	mg/L					04/11/2024	EDM	U
Magnesium	<80	ug/L					04/11/2024	EDM	U
Phosphorus as P	<0.012	mg/L					04/11/2024	EDM	U
LCS (B241226-BS1)									
Calcium			98.9	85-115			04/11/2024	EDM	
Magnesium			101	85-115			04/11/2024	EDM	
Phosphorus as P			102	85-115			04/11/2024	EDM	
Duplicate (B241226-DUP1) Source ID: AC00341-01									
Calcium					1.81	20	04/11/2024	EDM	
Magnesium					1.16	20	04/11/2024	EDM	
Phosphorus as P					2.27	20	04/11/2024	EDM	
Matrix Spike (B241226-MS1) Source ID: AC00341-01									
Calcium			100	70-130			04/11/2024	EDM	
Magnesium			102	70-130			04/11/2024	EDM	
Phosphorus as P			101	70-130			04/11/2024	EDM	
Matrix Spike Dup (B241226-MSD1) Source ID: AC00341-01									
Calcium			102	70-130	1.34	20	04/11/2024	EDM	
Magnesium			103	70-130	0.658	20	04/11/2024	EDM	
Phosphorus as P			103	70-130	1.62	20	04/11/2024	EDM	

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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Total Metals (Continued)									
Batch: B241233									
Blank (B241233-BLK1)									
Mercury	<0.01	ug/L					04/05/2024	SAS	U
LCS (B241233-BS1)									
Mercury			104	85-115			04/05/2024	SAS	
Duplicate (B241233-DUP1) Source ID: AC00340-01									
Mercury					47.0	20	04/05/2024	SAS	QC-02
Duplicate (B241233-DUP2) Source ID: BB03721-01									
Mercury					NR	20	04/05/2024	SAS	U
Matrix Spike (B241233-MS1) Source ID: AC00340-01									
Mercury			97.8	70-130			04/05/2024	SAS	
Matrix Spike (B241233-MS2) Source ID: BB03721-01									
Mercury			101	70-130			04/05/2024	SAS	
Matrix Spike (B241233-MS3) Source ID: EP00317-02RE1									
Mercury			75.9	70-130			04/05/2024	SAS	D
Matrix Spike Dup (B241233-MSD1) Source ID: AC00340-01									
Mercury			91.3	70-130	5.80	20	04/05/2024	SAS	
Matrix Spike Dup (B241233-MSD2) Source ID: BB03721-01									
Mercury			102	70-130	1.06	20	04/05/2024	SAS	

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Boise City Public Works
Water Quality Laboratory
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Boise, Idaho 83714-1076
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Quality Control Report
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Analyzed	Analyst Initials	Qualifier
Dissolved Metals									
Batch: B241178									
Blank (B241178-BLK1)									
Cadmium	<0.010	ug/L					04/04/2024	DMW	U
Copper	<0.15	ug/L					04/04/2024	DMW	U
Lead	<0.0090	ug/L					04/04/2024	DMW	U
Zinc	<0.50	ug/L					04/04/2024	DMW	U
LCS (B241178-BS1)									
Cadmium			99.9	85-115			04/04/2024	DMW	
Copper			93.2	85-115			04/04/2024	DMW	
Lead			99.4	85-115			04/04/2024	DMW	
Zinc			94.5	85-115			04/04/2024	DMW	
Duplicate (B241178-DUP1) Source ID: AC00340-01									
Cadmium					NR	10	04/04/2024	DMW	U
Copper					0.527	10	04/04/2024	DMW	
Lead					2.01	10	04/04/2024	DMW	
Zinc					1.59	10	04/04/2024	DMW	
Matrix Spike (B241178-MS1) Source ID: AC00340-01									
Cadmium			102	70-130			04/04/2024	DMW	
Copper			91.6	70-130			04/04/2024	DMW	
Lead			98.4	70-130			04/04/2024	DMW	
Zinc			91.2	70-130			04/04/2024	DMW	
Matrix Spike Dup (B241178-MSD1) Source ID: AC00340-01									
Cadmium			102	70-130	0.490	10	04/04/2024	DMW	
Copper			91.9	70-130	0.188	10	04/04/2024	DMW	
Lead			98.3	70-130	0.146	10	04/04/2024	DMW	
Zinc			89.8	70-130	0.970	10	04/04/2024	DMW	

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Notes and Definitions

tem	Definition
	Data reported from a dilution
IC-02	The RPD is greater than the method acceptance criteria. At least one of the values used to calculate the RPD, is less than or equal to the PQL.
	Analyte included in the analysis, but not detected

lethod Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Kate Harris
Interim Water Quality Laboratory Manager

Ada County Highway District

Attn: Steven Turner
3775 Adams Street
Garden City, Idaho 83714–6418
Tel. (208) 387–6269
Fax (208) 387–6391

Purchase Order: 63065628
Project: Stormwater-PI
Sampler(s): Kristen Chisholm
~~&~~ Steven Turner

Lab#	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix: Water	Type: Grab	Type: Composite	BOD_5 - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	~~E. Coli - IDEXX Colilert~~ Chlorides EPA 300.0	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO_3+NO_2 - EPA 353.2	NH_3 - SM 4500 NH_3 - D	Total Containers
00340-01	3/27/24	3/28/24	1933	0739	~~23~~ 240328-12-WC	KC	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3
↓ -02		3/23/24		1200	240328-14-~~WE~~002	KC	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
Kristen Chisholm	3/28/24 1130	3/28/24 1134	

ACD00340