

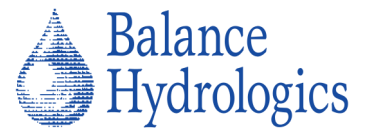
# Truckee Meadows Storm Water Monitoring Annual Report Fiscal Year 2021



Prepared for:



Prepared by:



In Cooperation with:



November 2021

November 15, 2021

**A DRAFT REPORT PREPARED FOR:**



Environmental Engineering Team  
Public Works  
1 East First Street, 7th floor  
Reno, Nevada 89501  
(775) 334-2350  
[stormwater@reno.gov](mailto:stormwater@reno.gov)

In Cooperation with:



**The Truckee Meadows Stormwater Permit Coordinating Committee**  
(NPDES MS4 Discharge Permit No. NVS000001)

by

**DRAFT**

Benjamin Trustman  
Hydrologist

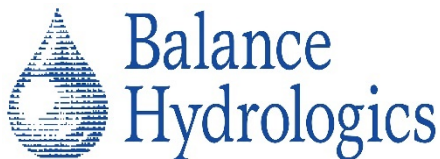
Reviewed By:

**DRAFT**

Brian Hastings, P.G.  
Hydrologist/Geomorphologist

**DRAFT**

David Shaw, P.G.  
Principal in Charge



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Project Assignment: 213136

12020 Donner Pass Road, Unit B1 ~ Truckee, California 96161 ~ (530) 550-9776 ~ [office@balancehydro.com](mailto:office@balancehydro.com)

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## EXECUTIVE SUMMARY

The Truckee River through the Truckee Meadows has impaired water quality related to elevated water temperature, excessive nutrients, and increased total dissolved solids (TDS). Water quality is of particular concern because the Truckee River and its tributaries have several beneficial uses, including aquatic habitat, recreation, and domestic and irrigation water. To attain nutrient-related water quality objectives in the Truckee River, the Nevada Division of Environmental Protection (NDEP) has developed a Total Maximum Daily Load (TMDL) for total-nitrogen (Total-N), total-phosphorus (Total-P), and TDS. Furthermore, NDEP re-evaluates data every 2 years under the Clean Water Act, Section 303(d) to update or establish Water Quality Standards (WQS) and Requirements to Maintain Higher Water Quality for impaired tributaries, reaches or river segments.

In 1990, the NDEP issued a Municipal Separate Storm Sewer System (MS4) permit to the Truckee Meadows Region, including the City of Reno, Sparks, and Washoe County. The permit requires the continued administration, implementation, and enforcement of a Stormwater Management Program (SWMP) to mitigate pollution from stormwater runoff within the Truckee Meadows permit area, including receiving waters of the Truckee River and its tributaries. A stormwater monitoring program to collect and analyze stormwater and baseflow samples across Truckee River tributaries and some urban outfalls has been part of the SWMP since 2003 and is currently carried out according to the 2020 Sampling and Analysis Plan (SAP), as updated by Balance Hydrologics (Trustman, 2020).

This annual stormwater monitoring report is required under the Truckee Meadows MS4 permit to report stormwater and non-stormwater quality measured in the previous fiscal year. This information supports the permit holder in developing a robust data set of water quality in the Truckee Meadows. In addition, this data set is used to identify water quality or environmental degradation trends in the Truckee Meadows.

Balance Hydrologics evaluated water quality in stormwater and baseflow at 16 monitoring stations as part of the Truckee Meadows Regional Storm Water Quality Management Program in Fiscal Year 2021 (FY2021)<sup>1</sup>. Grab samples are collected, manual measurements of instantaneous streamflow are made, and instantaneous loads are quantified for 8 stations. Additionally, automated samplers and near-continuous streamflow gages at 4 urban outfalls and 4 tributary stations are used to collect flow-

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<sup>1</sup> Fiscal Year 2021 began July 1, 2020 and ended June 30, 2021.

weighted samples and calculate the stormwater constituent loads during selected storm events and two 24-hour baseflow periods.

Total annual precipitation in the Truckee Meadows in FY2021, as measured at the Reno-Tahoe International Airport (RNO), was 2.99 inches, well below the long-term annual average of 7.40 inches. A majority of the annual precipitation was recorded during storms in November and late January. February, typically the wettest month of the year, was unseasonably dry in 2021 with only 0.12 inches of recorded precipitation. Some summer convective storms were observed in May and June, but they were isolated with limited measurable precipitation and runoff.

As a result of the well-below average precipitation and limited rainfall-runoff events, Balance staff delivered 22 out of a targeted 32 samples to WetLAB for characterization of stormwater runoff from 16 stations in FY2021. As in past years, Balance also collected samples to characterize water quality during baseflow conditions at 12 tributary monitoring stations. Summer baseflow sampling occurred on September 3 and 4, 2020 and winter baseflow sampling occurred on March 29 and 30, 2021.

Total-N concentrations in stormwater runoff exceeded water quality standards (WQS) where WQS have been established. In addition, six of seven Total-N concentrations in tributary baseflow exceeded WQS at locations sampled and where WQS exist. The highest measured stormwater runoff concentrations were from the Arlington urban stormwater outfall (25 mg/L). The highest measured baseflow concentrations were measured in Boynton Slough (3.2 mg/L), a large, urban tributary to Steamboat Creek.

In this program two tributaries are analyzed for nitrate concentrations in stormwater runoff and baseflow (Chalk Creek and Alum Creek). Both tributaries feed the Truckee River above Idlewild Park. Samples collected from both Alum Creek and Chalk Creek were measured below the established water quality standards (WQS) for the Truckee River (S.V.  $\leq 2.0$  mg/L). The concentrations ranged from not detected above the laboratory reporting limits to 1.4 mg/L.

TKN is a measure of the total concentration of organic nitrogen and ammonia. Although we do not directly analyze for TKN in the Sample Analysis Plan (SAP), the results are reported from laboratory samples in order to calculate Total-N. We include the TKN results in this report and results ranged from 0.91 mg/L to 25 mg/L. Baseflow results from the tributary stations ranged from not detected above the laboratory reporting limits to 1.70 mg/L.

Total-P concentrations ranged between 0.13 mg/L and 2.0 mg/L. The highest measured Total-P concentrations in stormwater runoff were from the Arlington Street urban stormwater outfall. Total-P concentrations in baseflow ranged between 0.05 mg/L to 0.42mg/L. Currently, WQS for Total-P for waters monitored under this program are expressed as annual-averages. Results presented in this report are single values and comparisons should be used with caution.

Ortho-P concentrations in stormwater runoff and baseflow in the tributaries and urban stormwater outfalls that feed the Truckee River above East McCarran exceeded established water quality standards (WQS) established for the Truckee River (S.V.  $\leq$  0.05 mg/L). The concentrations ranged from 0.075 mg/L to 1.6 mg/L. There are no other WQS established for Ortho-P on any of the other water bodies monitored for this program.

Measured TDS concentrations in stormwater runoff exceeded single value requirements to maintain existing higher water quality set by the NDEP in 16 of 22 of the samples collected in FY2021. TDS concentrations in baseflow exceeded the same requirement in samples from North Truckee Drain, Chalk Creek, Alum Creek, Yori Drain, and all three stations on Steamboat Creek. Additional water quality standards for TDS are measured in annual average and presented for reference only. In some cases, TDS concentrations in baseflow exceeded the single value requirement concentrations in stormwater runoff, suggesting water quality impairment may originate from irrigation returns, illicit discharges, or other sources that occur during non-precipitation runoff.

Limited storm event water samples were collected and analyzed for *E.coli* in FY2021 due to sampling holding time constraints and the limited runoff events, but water samples were collected at nearly all stations during baseflow conditions. Stormwater runoff samples were successfully collected and analyzed from only Alum Creek and Steamboat Creek at Rhodes Road, and counts from both samples exceeded established WQS. All baseflow water samples collected in FY2021 met WQS for *E. coli*.

Turbidity, Dissolved Oxygen (DO) and pH exceeded established WQS in some instances. All DO measurements were within an acceptable range or met WQS except those in summer baseflow measured in North Truckee Drain at Big Fish Drive. Only two pH measurements were below the WQS range: one from North Truckee Drain at Big Fish Drive and one from the Mary Wahl Drain urban stormwater outfall. All stormwater samples and most (except for 5) baseflow samples exceeded the WQS for turbidity (S.V.  $\leq$  10 NTU).

Storm loads were generally small from the urban stormwater outfall samples collected in FY2021. This is due both to the smaller storms that were sampled, as well as the relatively small contributing watershed areas. For example, storm loads from the November 18, 2020 sampled at Arlington and Mary Wahl compared to the Truckee River TMDL were 7% of the Total-N TMDL, 5% of the Total-P TMDL, and 0.2% of the TDS TMDL. This storm did not last for 24 hours and the storm load is not an estimate of daily load. Loadings from urban stormwater outfalls during the December 2020 and January 2021 storms were even smaller than the November 2020 storm.

Constituent 'yields' are normalized based on watershed area and provide an indication of constituent production and delivery rates from a given area. Yields are calculated and reported in terms of pounds per square mile of watershed area (lbs./sq. mile). For example, although total loads were higher at Mary Wahl Drain during the November storm, Arlington had higher yields, indicating that the contributing watershed area to the Arlington stormwater outfall is producing more nutrients, fine sediment, and dissolved solids relative to other portions of the watershed. In both the December 2020 and January 2021 storms, Fisherman's Park delivered the highest constituent loads, yet the Oxbow Park contributing watershed areas delivered the highest yields when normalized for watershed areas.

Nested baseflow sampling in the Steamboat Creek watershed showed that the Yori Drain sub-watershed delivered higher nutrient and TDS yields than either Boynton Slough or the rest of the upper Steamboat Creek watershed.

## 1 INTRODUCTION AND PROJECT PURPOSE

### 1.1 Introduction

The Truckee Meadows Storm Water Permit Coordinating Committee (SWPCC) is composed of representatives from the City of Reno, City of Sparks and Washoe County. The committee is responsible for developing, administering, and implementing the Stormwater Management Program (SWMP) for the Truckee Meadows (**Figure 1-1**). The SWPCC is required by its MS4 permit to conduct this program to monitor and implement source controls to reduce and prevent pollutants from entering local water bodies. This program must follow a Sampling and Analysis Plan (SAP) that describes the monitoring protocols and procedures. Under the SWMP, sampling has been conducted since 2003 at multiple established monitoring stations across the Truckee Meadows, with results reported to the Nevada Department of Environmental Protection (NDEP). In fiscal year<sup>2</sup> 2021 (FY2021), the SWPCC contracted Balance Hydrologics (Balance) to continue implementing and improving the stormwater monitoring program, as according to the 2020 SAP (Trustman, 2020).

### 1.2 Project Purpose

The primary goal of the stormwater monitoring program is to develop a better understanding of how stormwater runoff affects receiving waters within the MS4 permit area over time through monitoring, research and investigation (Stantec, 2012). With accurate and representative monitoring data, the program's effectiveness can be assessed and can identify opportunities for new or revised stormwater Best Management Practices (BMPs). In support of this overall program goal, there are four monitoring objectives:

1. Characterize stormwater runoff quality in tributaries and urban stormwater outfalls to the Truckee River;
2. Collect the data necessary to improve our understanding of stormwater effects on listed constituents in impaired receiving waters;
3. Measure the baseflow water quality in selected tributaries with varying land-use types within the study area; and

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<sup>2</sup> Fiscal year corresponds to the City of Reno's 12-month fiscal period beginning July 1, for a given year through June 30 of the following named year.



4. Conduct special studies and investigations as needs arise and funding is available to understand stormwater issues in the area.

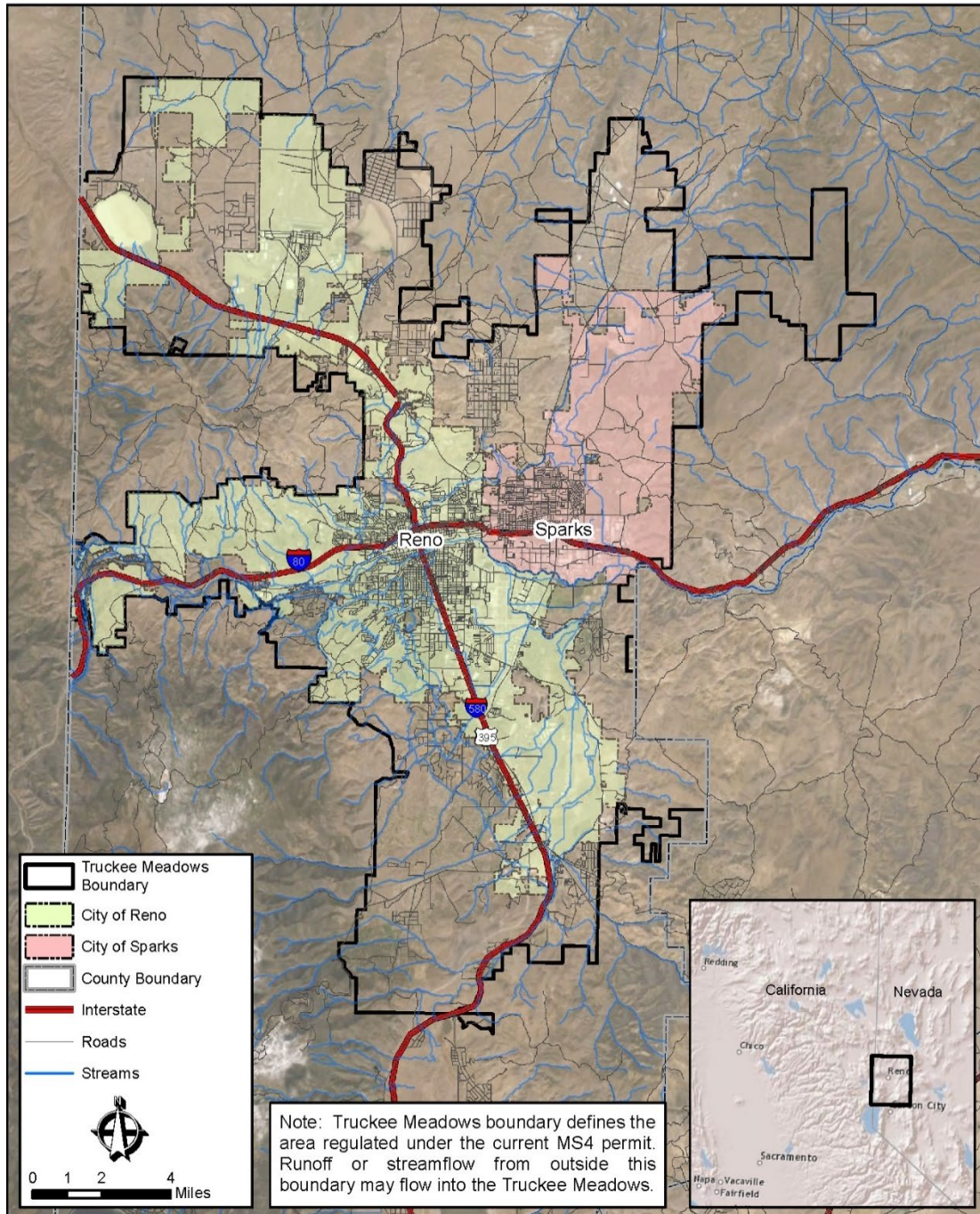


Figure 1-1 Location Map of Truckee Meadows, including City of Reno, City of Sparks and parts of Washoe County, Nevada

### 1.3 Regulatory Background

The discharge of municipal stormwater runoff within the Truckee Meadows is regulated under a single Municipal Separate Storm Sewer System (MS4) permit. The MS4 permit is jointly issued to the City of Reno, City of Sparks, and Washoe County. It allows the co-permittees to discharge municipal stormwater runoff into the receiving waters of the Truckee River and tributaries. The permit also requires stormwater monitoring, defined as regular observation and sampling that represents the volume and nature of the monitored discharge (NDEP, 2010).

In addition to the NPDES Stormwater Permit Program, Section 303(d) of the Clean Water Act also established a program to manage water pollution in water bodies that are not meeting federal water quality standards. Section 303(d) requires that states develop a list of impaired water bodies and assess the sources of that pollution.

Every two years, NDEP is required to prepare and submit an updated 303(d) list to the U.S. Environmental Protection Agency (USEPA). The 2020 SAP used for the monitoring program in this report is based on the 303(d) list from the Nevada Water Quality Integrated Report published in 2020. Impairment differs between listed water bodies, as shown in **Table 1-1**.

**Table 1-1 2016-2018 Impaired Waters and Listed Constituents 303(d) List, Truckee Meadows, Nevada (NDEP, 2020)**

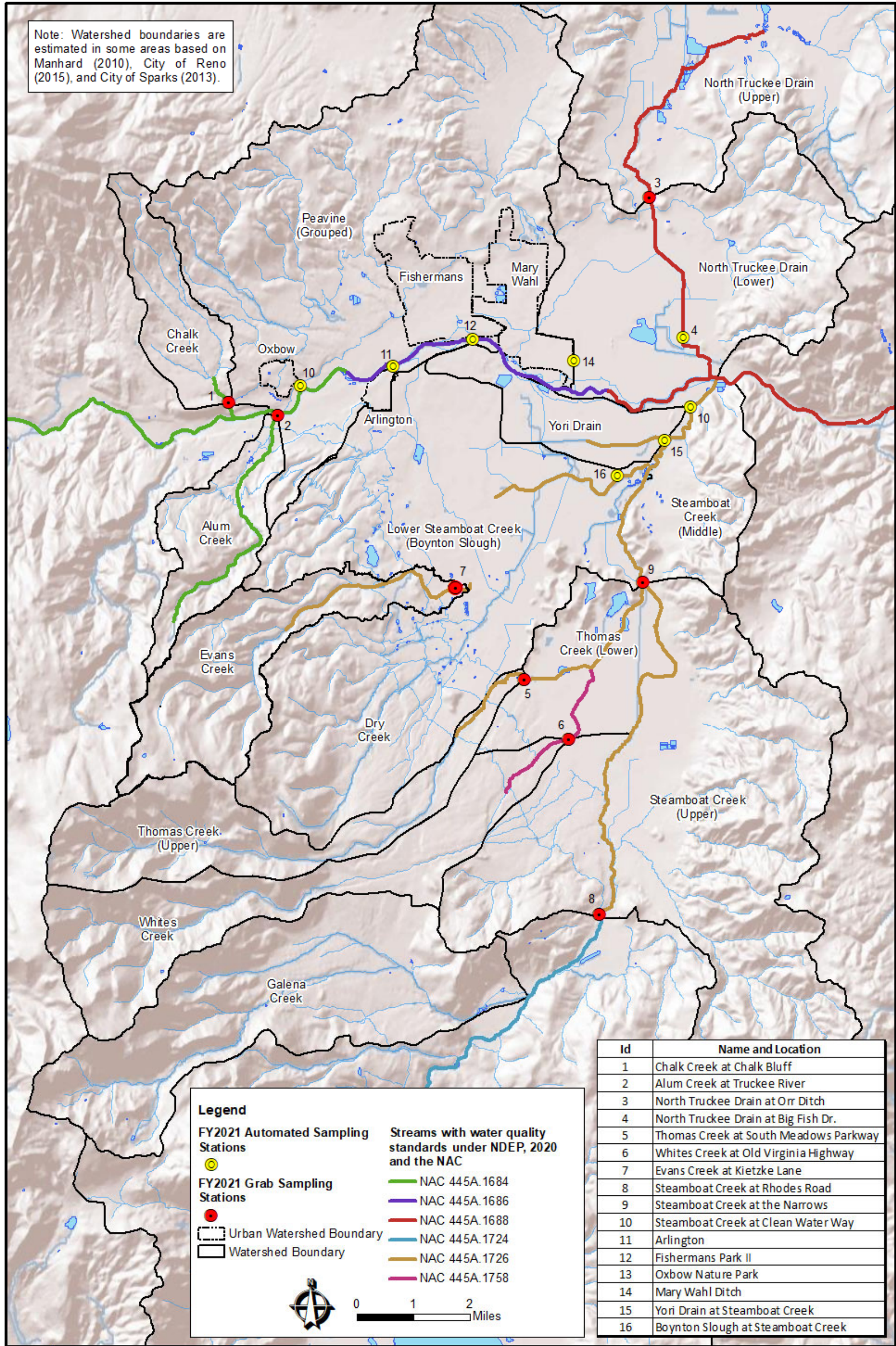
Impaired Waters and Listed Constituents, 2020 303(d) List, Truckee Meadows				
Monitoring	Water Name	Reach Impaired	Impairment	Impaired Beneficial Use
FY2021	Truckee River	From NV-CA state line to E. McCarran	Water Temperature	AQL
Yes	Alum Creek	Entire reach	pH Total-P Ortho-P Water Temperature TDS TSS	PWL, RWC AQL, RWC AQL, RWC AQL MDS AQL
Yes	Chalk Creek	Entire reach	Nitrate Total-P Ortho-P Selenium Sulfates Temperature TDS TSS	AQL, RWC AQL, RWC AQL, RWC AQL MDS AQL MDS AQL
No	Sparks Marina	Entire reservoir	Total-N Total-P TDS	AQL, RWC AQL, RWC MDS
No	Tracy Pond	Entire area	pH	AQL, PWL, RWC
No	Dry Creek	Headwaters to Boynton Slough	E-coli	RWC
No	Evans Creek	HWY 395 to Dry Creek	E-coli	RWC
No	Franktown Creek	From irrigation diversion to Washoe Lake	Iron	AQL
No	Galena Creek	(see NDEP, 2014)	pH	AQL, PWL, RWC
No	Hunter Creek	From Hunter Lake to its confluence with the Truckee River	pH	AQL
Yes	Steamboat Creek	Little Washoe Lake to USGS 10349300 USGS 10349300 to Truckee River	E-coli Arsenic Boron E-coli Iron	RWC AQL, IRR, WLS IRR, WLS RWC AQL
Yes	Thomas Creek	Below Steamboat Ditch	Arsenic Boron	AQL, IRR, WLS IRR, WLS
No	Washoe Lakes	Entire lakes	Mercury in fish tissue	FC
Yes (N. Fork Only)	Whites Creek	Middle Fork North and South Forks and Whites Creek North Fork	E-coli Iron Total-P Total-P E-coli	RWC AQL AQL, RWC AQL, RWC RWC

**Notes:**

Monitoring indicated with "yes" include at least one station of the listed waters monitored by Balance Hydrologics, Inc. as part of this program  
 AQL = aquatic life, FC = fish consumption, IRR = irrigation, MDS = municipal domestic supply, PWL = propagation of wildlife,  
 RNC = recreation not involving contact with water, RWC = recreation involving contact with water, WLS = watering of livestock.  
 Ortho-P = Orthophosphate, Total-N = Total Nitrogen, Total-P = Total Phosphorus, TDS = Total Dissolved Solids, TSS = Total Suspended Solids.

but are not limited to, irrigation, recreation, aquatic life, and drinking water supply. In many cases, listed waters have different beneficial uses and different numeric criteria. In addition, some listed waters have two or more segments, with each segment having different beneficial uses and numeric criteria.

Specific water-quality numeric criteria for this stormwater monitoring program were identified for each tributary or segment according to current NAC and control points. The Tributary Rule (NAC 445A.1239) states that all water quality standards (WQS) established for Designated Waters shall apply to all tributaries that are non-designated waters. **Figure 1-2** shows watershed boundaries for monitoring stations under this program along with and the tributary stream segments that have specific beneficial uses and numeric criteria. Designated waters non-designated tributaries are listed in **Table 1-2**. Specific water quality parameters, beneficial uses, and water quality standards for each of the six NAC-listed streams or river segments can be found in **Appendix E**. Some numeric criteria include single value (S.V.) measures and/or annual averages (A- Avg.). Samples collected as part of this program are considered S.V. measures and compared to S.V. standards when they exist. When S.V. standards do not exist for a given parameter, "A-Avg." values are presented for reference but are not necessarily comparable to the single targeted samples that are obtained under this program.



**Balance Hydrologics, Inc.**

Basemap Source: ESRI ArcGIS Online and data partners

Y:\GIS\Projects\213136 City of Reno\mxd\213136 Figure 1\_2 FY2021 Watershed and Water Quality Map.mxd

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Figure 1-2 Monitoring Station Map showing 303(d) Designated Waters with Water Quality Standards and Non-Designated Waters with Tributary Rule applied, Truckee Meadows Stormwater Program, FY2021

**Table 1-2 Designated Waters under Nevada Administrative Code (NAC) and Monitoring Stations where Water Quality Standards were applied using the Tributary Rule, Truckee Meadows Stormwater Program, FY2021**

Nevada Administrative Code	Description of Water Quality Control	Monitored Waters That Apply	Monitoring Station	Monitoring Station Code
NAC 445a. 1684	<i>Truckee River from California/Nevada State Line to Idlewild</i>	Chalk Creek	Chalk Bluff	CC@CB
		Alum Creek	at Truckee River	AC@TR
		Urban Outfall	Oxbow Nature Park	C-24
NAC 445a. 1686	<i>Truckee River from Idlewild to E. McCarran Boulevard Bridge</i>	Urban Outfall	Arlington	H-19
		Urban Outfall	Fisherman's Park II	D-16
		Urban Outfall	Mary Wahl Drain	SDOE 008936
NAC 445a. 1688	<i>Truckee River from E. McCarran Boulevard Bridge to Lockwood</i>	North Truckee Drain at Orr Ditch		NTD@ORR
		North Truckee Drain at Big Fish Drive		NTD@BFD
NAC 445a. 1724	<i>Steamboat Creek at gaging station (Rhodes Road upstream to Washoe Lake)</i>	Steamboat Creek	at Rhodes Road	SBC@RR
NAC 445a. 1726	<i>Steamboat Creek from USGS gage 10349300 to confluence with Truckee River</i>	Steamboat Creek	at the Narrows	SBC@NAR
		Steamboat Creek	at Clean Water Way	SBC@CWW
		Yori Drain	at Steamboat Creek	YD@SBC
		Boynton Slough	at Steamboat Creek	BS@SBC
		Evans Creek	at Kietzke Lane	EC@KL
		Thomas Creek	at South Meadow Parkway	TC@SMP
NAC 445a. 1758	<i>Whites Creek below Steamboat Ditch</i>	N.F. Whites Creek	at Old Virginia Highway	WC@OVH

Note: Detailed water quality standards are provided in **Appendix E**

For water bodies listed as impaired, states must assess the amount of pollution a water body can receive without violating water quality standards. This amount of pollution is called a Total Maximum Daily Load (TMDL). In 1994, the NDEP established TMDLs for the Truckee River for three different constituents: total nitrogen (Total-N), total phosphorus (Total-P), and total dissolved solids (TDS) (**Table 1-3**). The control point for these constituents is the Truckee River at Lockwood. Monitoring of waters in the Truckee River at Lockwood is not a component of this monitoring program. Instead, the Truckee Meadows Water Reclamation Facility (TMWRF) collects samples under a separate NPDES permit, and results are available on the Truckee River Information Gateway (TRIG; <http://truckeeriverinfo.org/>). The Truckee Meadows MS4 permit states that the permit holder must evaluate stormwater contributing to the 303(d) list or TMDL (Section II A. I). Therefore, the three constituents with TMDLs and other constituents of concern are measured under this stormwater monitoring program at urban outfalls and tributaries to the Truckee River. According to the NDEP 2020 Integrated report, the TMDLs for Total-N and Total-P were not met in 2016-2018 for the first time since the TMDL was instituted in 1994 (NDEP 2020), while the TMDL for TDS was met.

**Table 1-3 Total Maximum Daily Load (TMDLs), Truckee River at Lockwood**

	Total-N (lbs/day)	Total-P (lbs/day)	TDS (lbs/day)
TMDL	1000	214	900,528

## 2 SAMPLING AND ANALYSIS PLAN (2020) AND ADDENDUMS

Balance issued a revised FY2020 SAP in September 2020 (Trustman, 2020) that reflected several changes to the monitoring program over the previous three years. These changes include the addition of the South Evans Creek monitoring location in lieu of the Chalk Creek station, and the addition of Boynton Slough and Yori Drain monitoring locations.

### 2.1 Sampling and Analysis Plan

In FY2021, Balance conducted the monitoring program based on the 2020 SAP, which describes two different sampling activities: (1) scheduled, non-rain event, tributary baseflow sampling, and (2) unscheduled stormwater runoff sampling. The 2020 SAP identifies 16 monitoring stations, including 12 stations on nine tributaries requiring both baseflow sampling and unscheduled stormwater runoff sampling, and four urban outfall monitoring stations requiring only unscheduled stormwater runoff sampling. All four urban outfalls utilize near-continuous streamflow gages and/or automated samplers to collect multiple samples during a given storm runoff event to characterize constituent loading to the Truckee River. All samples that were not detected above the laboratory reporting limits were left out of the concentration results and no loads were calculated for these samples. We do recognize that although the results were not detectable according to the laboratory reporting limits, there can be some concentrations present.

Balance continued to operate streamflow gaging stations on five tributaries to the Truckee River (Alum Creek, South Evans Creek, Thomas Creek, Boynton Slough, and Yori Drain) as part of this program. The Chalk Creek gaging station was decommissioned in FY2020 due to ongoing disruptions from beaver activity. In the lieu of a continuous flow record, instantaneous flow measurements are collected during sampling events. In addition, Truckee Meadows Water Authority (TMWA) operates and maintains a streamflow gaging station on Whites Creek, which is used in this program to document streamflow and compute instantaneous loads. Streamflow data are used to quantify storm event runoff volumes and calculate instantaneous or total storm loading rates at these stations.

### 2.2 Constituents of Concern

The 2020 SAP identifies the following constituents and physical and chemical parameters of concern:

- Total nitrogen (Total-N),



- Nitrate as nitrogen ( $\text{NO}_3$ ),
- Total Kjeldahl nitrogen (TKN),
- Total phosphorus (Total-P),
- Ortho-phosphate (Ortho-P),
- Total dissolved solids (TDS),
- Total suspended solids (TSS),
- Total Escherichia coli bacteria (*E.coli*), and
- Standard physical and chemical parameters including, turbidity, pH, dissolved oxygen (DO), and specific conductance (SC).

Below, we define and briefly discuss the importance of these constituents/parameters related to stormwater in the Truckee Meadows.

### 2.2.1 NITROGEN AND PHOSPHORUS

Nitrogen and phosphorus are typical constituents of concern in urban stormwater. The primary sources of these nutrients in urban stormwater are urban landscape runoff, atmospheric deposition, animal waste, improperly functioning septic systems, and undertreated wastewater returned to the river (Terrene Institute, 1996). The degree to which nitrogen and phosphorus are present in a river can affect the trophic status and amount of algal biomass produced. Excess nutrients tend to increase primary biological productivity, which in turn cause algal blooms. A secondary impact is the residual adverse effects of decomposing algae, which depletes dissolved oxygen concentrations necessary to support other aquatic life (USEPA, 1999).

Total-N includes four different forms, including  $\text{NO}_3$ ,  $\text{NO}_2$ ,  $\text{NH}_3$ , and ammonium ( $\text{NH}_4$ ).  $\text{NO}_3$  and  $\text{NO}_2$  are the inorganic fractions of nitrogen.  $\text{NO}_2$  is uncommon in stormwater because it can quickly transform to  $\text{NO}_3$  by bacteria.  $\text{NO}_3$  is more stable and readily transported in water.  $\text{NO}_3$  is highly toxic to humans and fish at high concentrations and long-term exposure.  $\text{NH}_3$  is more volatile and converts to  $\text{NO}_2$  and  $\text{NO}_3$  through oxidation and is the most harmful to aquatic life.  $\text{NH}_3$  typically reacts or dissolves in water to form  $\text{NH}_4$  at neutral pH levels (i.e., near 7).  $\text{NH}_4$  is adsorbed on mineral surfaces or soil particles and is transported by sediment in the water (Hem, 1985). TKN is a measure of the total concentration of organic nitrogen and ammonia.

Nitrogen sources include residential and agricultural fertilizers, septic tanks, leaking sewer lines, and leach fields in surface waters. In addition, unsanitary disposal of human and pet excrement is common in urban areas and occurs in the Truckee Meadows urban areas.

Total-P is a measure of both organic and inorganic forms of phosphorus. Ortho-P is commonly present in stormwater, and the fraction of Total-P is most immediately biologically available to aquatic life (Hem, 1985). Sources of phosphorus in surface waters include the natural weathering and erosion of local bedrock, especially areas underlain by igneous rocks (e.g., granodiorite, volcanic rocks). Erosion can exacerbate the concentrations of phosphorus in stormwater. Other sources may include sewage and household detergents, runoff from fertilized lawns and cropland, runoff from animal manure storage areas or drained wetlands, decomposition of organic matter, and commercial cleaning products.

Identification of the source(s) of phosphorus (Total-P and Ortho-P) in tributaries is complicated by multiple possible sources and hydrological, geochemical, and biological processes affecting phosphorus fate and transport (Denver and others, 2010). For example, Romeis (1999) identified multiple possible sources of excess phosphorus to Steamboat Creek: Livestock, fertilizers, irrigation return flows, leaking septic systems and bank erosion. In addition, high phosphorus concentrations (as phosphate) can be present in geothermal wells in the Truckee Meadows region (Great Basin Groundwater Geochemical Database, 2016). Finally, Shump (1985) and Skalbeck and others (2002) have established that some tributaries, including Steamboat Creek, are gaining streams and receiving groundwater from non-thermal and thermal waters. However, the link between these possible sources and transport is poorly understood, and additional investigations into the source(s) of elevated phosphorus (Total-P and Ortho-P) concentrations are warranted.

### 2.2.2 TOTAL SUSPENDED AND DISSOLVED SOLIDS

TSS is a measure of both organic and inorganic solids suspended in the water column. In contrast, TDS measures all inorganic and organic substances dissolved in the water column (Hem, 1985). Waters that receive urban stormwater can see increases in both TSS and TDS. Their concentrations originate from many sources, including erosion of pervious surfaces, dust, litter, other particles deposited on impervious surfaces from human activities, sediment runoff at construction sites, and streambank erosion (Burton and Pitt, 2002).

Elevated TSS and TDS concentrations increase turbidity, reduce light penetration in streams, and limit the growth of desirable aquatic plants. In addition, TSS can settle in backwater areas or the main channel during periods of low flow and can alter or impair aquatic habitat and aquatic life. TSS can provide a medium for accumulating, transporting, and storing other pollutants, including nutrients and metals (USEPA, 1999).

Although TSS and TDS are not typically associated with human health effects, they are aesthetic and aggregate indicators of the presence of chemical contaminants. Elevated concentrations of TDS and TSS can be from natural erosion of geologic sources. Increases over background TSS and TDS may originate from agricultural and residential runoff and point-source pollution discharge from industrial and sewage treatment plants. Most aquatic ecosystems can tolerate TDS levels of 1,000 mg/L (Boyd, 1999).

### 2.2.3 PATHOGENS

Pathogens are disease-producing organisms that present a potential public health threat when they are present in waters (USEPA, 1999). Pathogens typically originate from warm-blooded animal excrement, including wild animals, urban animals (e.g., pigeons, raccoons, crows, dogs), or humans (i.e., raw sewage spills). Direct exposure to pathogens in stormwater is usually limited; however, runoff to recreational waters such as the Truckee River poses a potential public health risk. Runoff can contain many pathogens that cannot be measured directly; therefore, indicator organisms like *E.coli* can predict health risks (NDEP, 2020). High counts of bacteria may not necessarily confirm the presence of pathogens but provide an indicator for risk. In this report, *E.coli* results are in the Most Probable Number (MPN) units per 100 mL of water.

### 2.2.4 OTHER PHYSICAL AND CHEMICAL PARAMETERS

Standard physical and chemical parameters provide additional context for stormwater quality and conditions relative to receiving waters. In addition, NDEP has water quality standards for physical parameters, including turbidity, and chemical parameters including dissolved oxygen, and pH for the Truckee River and listed tributaries (NAC 445a.).

Dissolved oxygen (DO) concentration is a measure of the amount of oxygen dissolved in water. DO is critical to biological organisms and fish. High DO levels in streams are needed to sustain the more sensitive biological organisms (MacDonald and others, 1991). Low DO levels are commonly associated with point source pollution or decomposing organic matter in the water column. Urban stormwater typically has low to moderate DO levels

but DO increases when diluted in receiving waters. Higher DO concentrations may indicate super-saturated conditions attributed to rapid aeration and photosynthesis. During the process of photosynthesis, plants produce oxygen as a waste product. This byproduct adds to the DO concentration in the water, potentially increasing DO to values above 100 percent saturation (YSI, 2005). The actual concentration of DO will also vary depending on water temperature and salinity. First, the solubility of oxygen decreases as temperature increases. Second, dissolved oxygen decreases exponentially as salt levels increase (Wetzel, 2001). As such, we tend to see higher DO concentrations during winter when waters are colder and fresher from snowmelt runoff.

In general, DO concentrations can be a proxy for other constituents. For example, nitrate occurs readily in oxidizing conditions (higher DO concentrations), but ammonia occurs primarily in reducing conditions or the absence of DO.

Most aquatic ecosystems are also sensitive to variations in pH—runoff from rainwater with low pH impacts urban waters (USEPA, 1999). Also, pH can be affected by rapid changes in water temperatures (i.e., runoff heated by sun-warmed asphalt). As a result, urban and industrial areas tend to have more acidic rainfall than less developed areas. Additionally, eutrophication or abundance of nutrients in waters can cause high pH levels.

Specific conductance (SC) of waters refers to the ability of water to conduct an electrical current and is related to the concentration of dissolved solids. SC indicates the number of dissolved ions in the water and can be a proxy for salinity. While there are no recommended water quality criteria for conductivity, it can indicate TDS and other dissolved ions. SC can exhibit a wide range if waters move through areas of differing geology. For example, waters that drain granitic or volcanic rocks have a very low SC (< 400  $\mu$ S (micro Siemens)). Alternatively, waters that drain marine sedimentary rocks (e.g., Chalk Creek) or geothermal areas (e.g., Steamboat Creek) will typically have a much higher SC (>2,000  $\mu$ S). The acceptable range for freshwater fish is between 100 and 2,000  $\mu$ S (MacDonald and others, 1991).

### 3 STORM MONITORING STATIONS

The FY2021 stormwater monitoring program includes 16 monitoring stations: 12 tributary stations and four urban stormwater outfalls. Locations of monitoring stations, rain gages, and streamflow gages used for this monitoring program are in **Figure 3-1**. **Table 3-1** describes the characteristics of the stations and their drainage areas, including land-uses, constituents of concern, instrumentation, comments, and known existing studies. Drainage areas for each monitoring station were established using recent watershed assessments, special studies, zoning maps, stormwater system maps, aerial imagery available on Google Earth®, and field observations.

#### 3.1 Tributary Stations

The 2020 SAP establishes 12 monitoring stations across eight tributaries. Two of the largest tributaries, Steamboat Creek and North Truckee Drain, have more than one monitoring station along the mainstem of each stream, allowing for evaluation of possible water-quality degradation from specific sub-watersheds. Furthermore, four tributary stations flow to Steamboat Creek: Yori Drain, Boynton Slough (including S. Evans Creek), Thomas Creek, and Whites Creek.

Delineation of drainage areas for tributary monitoring stations is confounded by irrigation ditches that divert waters from the Truckee River upstream of the Truckee Meadows. These irrigation ditches receive stormwater runoff from intervening areas, then discharge water to other tributaries, or 'tailwaters,' at 'tailouts' and may affect water quality in the receiving tributary. However, water quality investigations in tailwaters are not part of this study. **Table 3-2** lists the locations where tailouts exist or where irrigation ditches can discharge to tributaries. These locations are also in **Figure 3-1**.

#### 3.2 Urban Stormwater Outfall Stations

The 2020 SAP identifies four urban stormwater outfalls as monitoring stations (See **Figure 3-1**). These outfalls typically discharge only during storm events; however, they can discharge non-stormwater related to illicit discharges. Discharge quality at these outfalls can affect receiving waters of the Truckee River and their designated beneficial uses. Under this program, we evaluate stormwater discharge only.

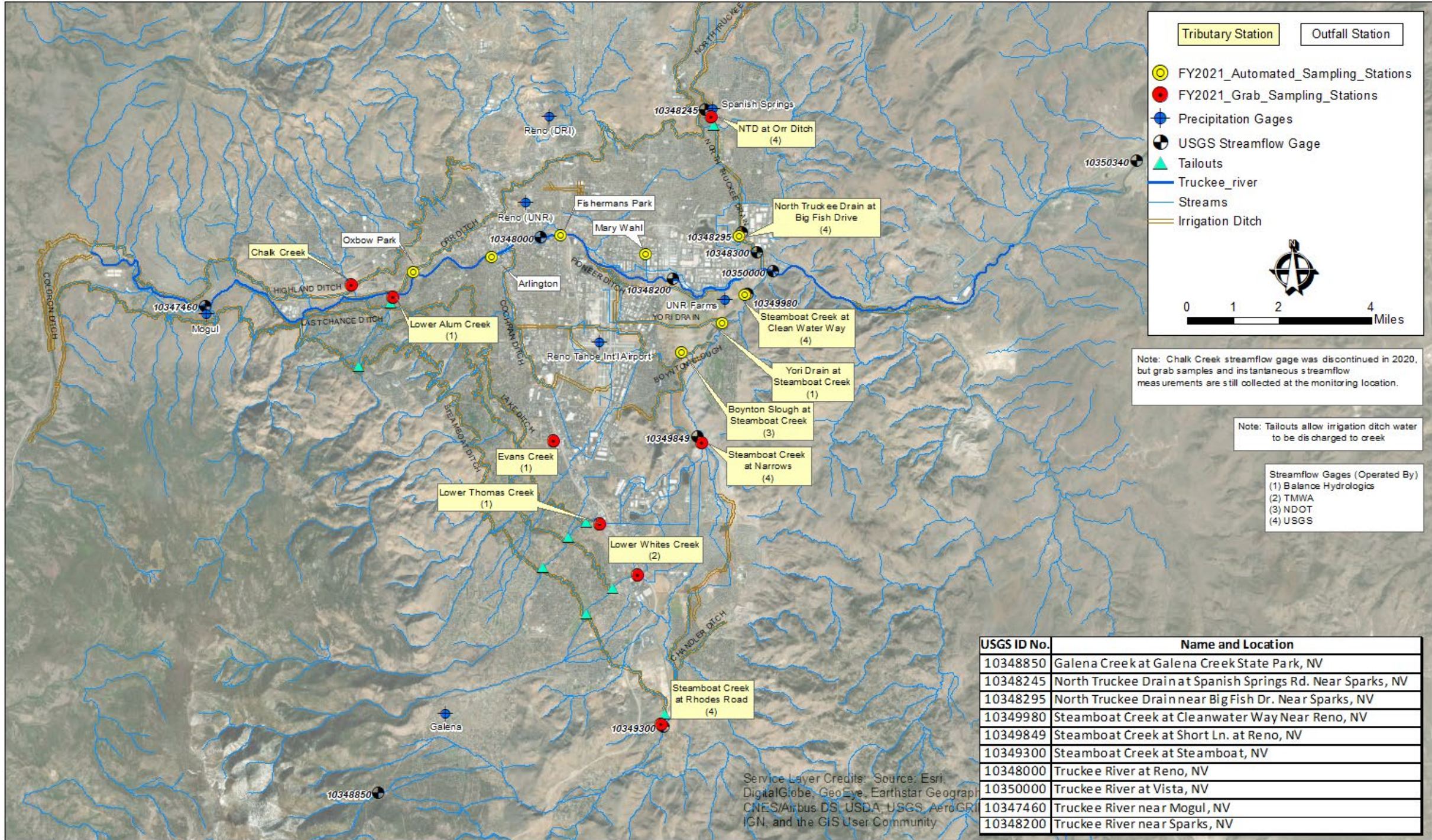
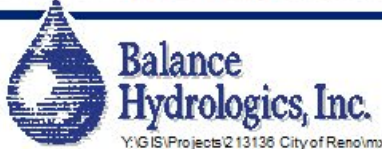


Figure 3-1. Truckee Meadows Stormwater Monitoring Locations, Washoe County, Nevada

Basemap Source: ESRI ArcGIS Online and data partners



Y:\GIS\Projects\213138 City of Reno\mxd\213138 Figure 3\_1 Stormwater Monitoring FY2021.mxd

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Figure 3-1 Truckee Meadows Stormwater Monitoring Stations, Streamflow Gaging Stations, Rain Gages, and Station Equipment, FY2021

Table 3-1 Monitoring Locations and Characteristics, Truckee Meadows Stormwater Monitoring Program, FY2021

Monitoring Station Name	Station ID	Watershed	Watershed Area (mi <sup>2</sup> )	Primary Land-Uses	Instrumentation	Comments	Existing Studies
<i>Tributaries</i>							
Chalk Creek at Chalk Bluff	CC@CB	Tributary to Truckee River	4.6	Upper watershed is undeveloped; lower watershed is residential; I-80 and some commercial	Grab sample and flow measurement only	Watershed includes geology of the Hunter Creek Formation: diatomaceous fine sandstone or "chalk" and lacustrine deposits which bear high concentrations of sulfates; streamflow gage was discontinued in 2020 due to beaver activity that compromised the gaging location.	JBR Environmental, 2010; Hastings and Trustman, 2019
Lower Alum Creek at Truckee River	AC@TR	Tributary to Truckee River	4.9	Residential, commercial, open space	Balance sampling station	Watershed geology includes Hunter Creek Formation, hydrous aluminum sulfates; artificial irrigation ponds provide some flood detention; Steamboat Ditch discharges to creek at times.	Fennema, 2013; Jesch, 2008 and 2011; Hastings and Trustman, 2019
Lower Alum Creek at Mayberry Dr.	AC@MAB	Tributary to Truckee River	4.9	Residential, commercial, open space	Balance gaging station	Gaging station upstream of AC@TR to record streamflow. Gage was relocated from AC@TR site in FY2019 due to stream changes. All water quality samples are still collected at AC@TR station and instantaneous flow is measured with all sample collection for load calculation	Fennema, 2013; Jesch, 2008 and 2011
North Truckee Drain at Orr Ditch	NTD@ORD	Tributary to Truckee River	76.1	agriculture, residential, and commercial	USGS gaging station 10348245	Receives return flows from irrigation ditches; drains much of Spanish Springs Valley; part of USACE flood control project	Jesch, 2005; Hastings and Trustman, 2019
North Truckee Drain at Big Fish Drive	NTD@BFD	Tributary to Truckee River	NA	agriculture, residential, and commercial, industrial	USGS gaging station 10348295 and ISCO automated sampler	Relocated in 2017 from a location downstream of I-80 and UPRR (Klepe Lane) to a new location upstream of I-80 and UPRR.	Jesch, 2005; Hastings and Trustman, 2019
Evans Creek at Kietzke Lane	EC@KL	Tributary to Steamboat Creek	9.6	agriculture, residential, and commercial	Balance gaging station	Located downstream of Anderson Park just upstream of I580. Gaging location represents mostly residential use.	Jesch, 2011
Thomas Creek at S. Meadows Pkwy	TC@SMP	Tributary to Steamboat Creek	18.5	Mixed residential and commercial, some small agriculture, golf course, new construction	Balance gaging station	Lower portions of creek are conveyed via concrete or lined flood control channels, culverts and ditches;	Jesch, 2011; Curtis, 2013; Hastings and Trustman 2019
NF Whites Creek at Old Virginia Hwy	WC@OVH	Tributary to Steamboat Creek	18.5	urban (mixed commercial and residential); new construction; open space in upper watershed	Washoe County gaging station	Additional 303(d) listed constituents for downstream reaches; channel is actively eroding in segments and increasing with increased urbanization of watershed	Jesch, 2011; Hastings and Trustman, 2019
Steamboat Creek at Rhodes Road	SBC@RHR	Tributary to Truckee River	123	Rural residential; major roads, historic gold and silver mining	USGS gaging station 10349300	Washoe Lake located short distance upstream	Parametrix and Wenk Associates, 2007; Codega, 1998; Hastings and Trustman, 2019
Steamboat Creek at Narrows	SBC@NAR	Tributary to Truckee River	192	Mixed residential-commercial, major roads, agriculture, historic gold and silver mining; geothermal operations, new construction	USGS gaging station 10349849	Downstream from hot springs and geothermal operations; channel in poor condition; Southeast Connector construction completed spring 2018	Parametrix and Wenk Associates, 2007; Codega, 1998; Hastings and Trustman, 2019
Boynton Slough at Steamboat Creek	BS@SBC	Tributary to Steamboat Creek	48.5	Upper watershed is open space; lower:mixed residential-commercial, agriculture, golf courses, historical mining, geothermal operations, new construction, airport, major roadways	Balance /NDOT gaging station and ISCO automated sampler	Upper watershed includes open space from Mt. Rose; Lower section captures a large amount of urban runoff from South Reno, including outflow from Virginia Lake via Dry Creek. Watershed area is estimated using multiple sources.	City of Reno, 2016 (Virginia Lake)
Yori Drain @ Steamboat Creek	YD@SBC	Tributary to Steamboat Creek	4.2	Mixed residential-commercial, agriculture, golf courses, historical mining, geothermal operations, new construction, airport, major roadways	ISCO automated sampler and area-velocity module	Drains portions of urban Reno including Mill Street west to Renown Hospital, UNR Farms.; Receives Truckee River water from Pioneer Ditch; last portion of Yori Drain is directly connected to engineered overflow wetlands adjacent to the Southeast Connector. Watershed area is estimated using multiple sources.	Kennedy Jenks Consultants, 2004
Steamboat Creek at Clean Water Way	SBC@CWW	Tributary to Truckee River	244	Mixed residential-commercial, major roads, agriculture, golf courses, historic mining; geothermal operations, new construction, Reno-Tahoe Airport	USGS gaging station 10349980 and ISCO automated sampler	Southeast Connector construction completed spring 2018	RTCWC, 2013; Parametrix and Wenk Associates, 2007; Codega, 2000; Hastings and Trustman, 2019
<i>Stormwater Urban Outfalls</i>							
Island at Arlington	H-19	Outfalls to Truckee River	0.32	Residential (single family), commercial with urban landscaping	ISCO automated sampler and area-velocity module	One of the oldest neighborhoods in Reno; most homes built before 1940; possible cross connections with domestic sewer lines; sampling location is an outfall directly to Truckee River	n/a
Fisherman's Park II	D-16	Outfalls to Truckee River	5.1	Mixed residential, commercial, industrial and some agriculture, major roadways, UPRR and new construction	ISCO automated sampler and area-velocity module	Area drains portions of University of Nevada-Reno, Nevada State Fair Grounds, U.S. Agriculture Research Services; sampling location is an outfall directly to the Truckee River	n/a
Oxbow Nature Park	C-24	Outfalls to Truckee River	0.36	Residential (single family and multi-family units), commercial and urban landscaping	ISCO automated sampler and area-velocity module	Drainage area is 100 percent built out with an estimated 85+ percent impervious surface; access is via a storm drain manhole cover approximately 400 feet from outfall to the Truckee River	n/a
Mary Wahl Drain	SDOE-008936	Outfalls to Truckee River	2.5	Mixed residential, commercial, industrial and some agriculture, major roads, UPRR and new construction	ISCO automated sampler and area-velocity module	Recently enclosed in a concrete box culvert (December, 2014); culvert accumulates sediment; sampling location is a manhole roughly 750 feet upstream of the outfall to the Truckee River	n/a

Note: Watershed areas in italics are estimated

**Table 3-2 Tributary Monitoring Stations Receiving Tailwaters from Irrigation Ditches**

Irrigation Ditch	Monitoring Sites that Receive Tailwaters
Steamboat Ditch	Alum Creek at Truckee River Thomas Creek at S. Meadows Parkway Whites Creek at Old Virginia Highway Steamboat Creek at Narrows and Clean Water Evans Creek at Kietzke Lane
Last Chance Ditch	Alum Creek at Truckee River Thomas Creek at S. Meadows Parkway Whites Creek at Old Virginia Highway Evans Creek at Kietzke Lane
Lake Ditch	Thomas Creek at S. Meadows Parkway Alum Creek at Truckee River
Orr Ditch	North Truckee Drain at Orr Ditch North Truckee Drain at Big Fish Drive
Cochrane Ditch	Steamboat Creek at Clean Water Way Boynton Slough at Steamboat Creek
Pioneer Ditch	Yori Drain at Steamboat Creek

Notes: See **Figure 3-1** for locations of ditches and diversions to tributaries.



## 4 STORM MONITORING PROGRAM METHODS

This chapter describes the sampling equipment and methods used to collect water quality samples, measure and gage discharge or streamflow, and measure physical parameters of stormwater.

### 4.1 Types of Equipment

**Table 4-1** lists the field parameters measured, instruments used, and the resolution and accuracy of each device.

**Table 4-1 Instruments Used to Measure Water Quality, Runoff and Physical Parameters during Storm Events**

Parameter	Units	Instrument	Range	Accuracy	Calibration	Comments
Velocity	ft/s	Hach velocity meter	-0.5 to +20	+/- 2%	Factory	Used for calculation of instantaneous discharge rate
Velocity	ft/s	Teledyne-ISCO 750 AV module	-5 to +5	+/- 1%	Factory	Measures near-continuous velocity; used for calculation of discharge volume
Velocity	ft/s	Bucket-wheel meter	0.2 to 25	+/- 2%	Manual	Used for calculation of instantaneous discharge rate
Depth	ft	Teledyne-ISCO 750 AV module	0.03 to 5.0	+/- 0.008	Factory	Measures near-continuous depth; used for calculation of discharge volume
		In-Situ Rugged Troll 100	0 to 30	+/- 0.05%	Factory	
Water Temperature	deg. C	YSI-Professional Plus	-5 to +70	+/- 0.2	Manual	
Conductance	µS	YSI-Professional Plus	0 to 200,000	+/- 0.5%	Manual	Four electrode cell
Specific Conductance	µS at 25 deg. C	YSI-Professional Plus	0 to 200,000	+/- 0.5%	Manual	Four electrode cell
Dissolved Oxygen	mg/L, %	YSI-Professional Plus	0-500 %	+/- 2%	Manual	Polarographic
pH	--	YSI-Professional Plus	0 to 14 units	+/- 0.2	Manual	Glass combination electrode
Turbidity	NTU	HF Scientific-Micro TPW	0 to 1,100	+/- 2%	Manual	EPA Method 180.1

Parameter	Units	Instrument	Range	Accuracy	Calibration	Comments
Depth <sup>1</sup>	ft	Campbell CS-451	0 to 5.1 m	+/- 0.1 %	Factory	Measures near-continuous depth; used for calculation of discharge volume
Water Temperature <sup>1</sup>	deg. C	Manta + 30	-5 to 50 °C	+/- 0.2	Manual	
Specific Conductance <sup>1</sup>	µS at 25 deg. C	Manta + 30	0 to 275,000 µS	+/- 0.5%	Manual	Four electrode cell
Dissolved Oxygen <sup>1</sup>	mg/L, %	Manta + 30	0-500 %	+/- 5%	Manual	Optical
pH <sup>1</sup>	--	Manta + 30	0 to 14 units	+/- 0.2	Manual	Glass combination electrode
Turbidity <sup>1</sup>	NTU	Manta + 30	0 to 5000	+/- 2%	Manual	EPA Method 180.1

<sup>1</sup> NDOT owned and operated water quality monitoring station

## 4.2 Sampling Procedures

Stormwater runoff samples are collected using various methods depending on the site and instrumentation. For example, samples collected at automated sampling stations used either time-interval or flow-interval techniques to fill discrete sample bottles automatically throughout the storm hydrograph, while other stations require grab samples. Unless otherwise noted, grab samples are collected using a clean, triple-rinsed container and were collected, composited, and mixed to fill laboratory-required volumes and laboratory-supplied bottles.

All storm and baseflow samples are delivered to Western Environmental Testing Laboratory (WETLAB) in Sparks, Nevada, under Chain-of-Custody (COC) procedures. Sample processing and procedures were completed as outlined in the 2020 SAP.

## 4.3 Streamflow/Discharge Gaging

Under this program, Balance operates and maintains four streamflow gaging stations and works with NDOT to operate a fifth station at Boynton Slough using standard hydrologic practices. The primary purpose of the gaging stations is to record near-continuous streamflow and quantify constituent loading across each storm event sampled. Four stations have Type C staff plates indicating water stage, and In-Situ® or Campbell Scientific® pressure transducers record water pressure depth. Near-continuous records of water pressure depth are converted to stage (in feet) and calibrated with each observation. Manual measurements of streamflow are completed over a range of stages to develop a stage-to-streamflow rating curve. The rating curve is used to convert the near-continuous record of the stage to a near-continuous record of streamflow. If channel conditions suggest a change in the stage-to-streamflow rating curve, a stage shift is applied when appropriate.

The Yori Drain gaging station is located within a culvert or pipe and equipped with an ISCO 750 velocity-area module. The module records velocities and water depths every 10 seconds and averages them into 5-minute near-continuous records. The ISCO program converts water depths into a cross-sectional area using a known culvert diameter and calculates discharge or streamflow using the Continuity Equation (flow = area x velocity).

While every effort is made to collect near-continuous, accurate data, we identify the following possible limitations for this program and gaging in urban systems:

- Site visits may be limited due to access and sample timing. They may not document some changes in conditions that affect flow (e.g., channel erosion, sediment or garbage accumulation in a culvert, vandalism, lower stream depths than instrument sensor, etc.);
- Some gaging stations are near confluences with larger tributaries or the Truckee River, so backwatering can occur in extreme events. Identified periods of backwatering and erroneous data are replaced with estimated streamflow or discharge when feasible; and
- The gaging program is not intended to quantify flood magnitude, frequency, or recurrence intervals. Moreover, while stormwater can cause flooding, not all flood events qualify as targeted stormwater sampling events, so site visits might not occur during flooding conditions.

#### 4.4 Manual Streamflow/Discharge Measurements

Balance utilizes standard streamflow equipment and practices appropriate for the conditions encountered in the field (Carter and Davidian, 1968). Discharge is measured or estimated during stormwater sample collection. A digital velocity meter measures velocity and allows for computation of instantaneous stormwater discharge in closed stormwater systems (i.e., pipes) accessed by a manhole. Discharge in open channels is calculated using a pygmy, standard Price AA (bucket-wheel) meter, or a digital velocity meter. The Mid-Section Method for computing cross-sectional flow area using multiple verticals and the Six-Tenths-Depth Method for computing mean velocity at each vertical are used (Turnipseed and Sauer, 2010). A minimum of two verticals to measure velocity in a pipe and a minimum of four verticals are used to measure channel depth and velocity in open channels. The total number of verticals is established based on how quickly water depth changes. Each open channel monitoring station includes a staff plate, which allows for consistent stage readings. The cross-sectional area of the pipe or open channel is multiplied by the velocity measured at the cross-section to compute an instantaneous discharge. Streamflow estimates are completed using measured flow widths (ft) and depths (ft) and measurements of surface velocity using a float's movement across a known distance with a stopwatch (ft/sec).

#### 4.5 Near-Continuous Streamflow Gaging Stations

Streamflow gaging provides an opportunity to compute constituent load for comparisons to established TMDLs. Streamflow gaging also provides a near-continuous flow record to understand better the influence of stormwater runoff, snowmelt runoff, or

irrigation returns on natural streamflow. In FY2021, Balance operated and maintained four near-continuous streamflow gaging stations on monitored tributaries: (1) South Evans Creek at Kietzke Lane (EC@KL); (2) Alum Creek at Mayberry Drive (AC@MAB); (3) Thomas Creek at South Meadows Parkway (TC@SMP); and (4) Yori Drain at Steamboat Creek (YD@SBC).

The Alum Creek at Truckee River stream gage was relocated to Alum Creek at Mayberry Drive (AC@MAB) due to active channel erosion and instability in 2018. Still, all stormwater samples have been collected approximately 2,000 feet downstream at the Alum Creek at Truckee River (AC@TR) station for consistency with previous years. Manual flow measurements are conducted at the time of sampling at the Truckee River station for calculating instantaneous load. Annual streamflow records are from the Mayberry gaging location. At times very low flow at the Mayberry station is observed (<0.01 cfs) and the lower station is dry with no flow, possibly due to infiltration downstream of the gaging station.

NDOT operates and maintains a near-continuous stage gage on Boynton Slough at Steamboat Creek (BS@SBC). Balance uses discharge measurements and the data provided by NDOT to develop a stage to discharge relationship and compute a flow record.

All stations are calibrated using manual observations and stage shifts are applied as appropriate to produce an annual streamflow hydrograph at each station. Near-continuous streamflow gaging stations operated and maintained by the US Geological Survey (USGS) or Truckee Meadows Water Authority (TMWA) provide annual hydrographs from other monitored tributary stations. Streamflow volumes calculated at all stations are combined with sampled constituent concentrations to calculate instantaneous, daily, and total storm loads for selected constituents (see Section 4.7).

#### 4.6 Automated Sampling and Discharge Computation

In FY2021, Balance operated and maintained Teledyne-ISCO® automated samplers at 8 Stations (4 stormwater urban outfall stations and 4 tributaries):

1. Arlington (H-19);
2. Oxbow Nature Park (C-24);
3. Fisherman's Park II (D-16);
4. Mary Wahl Drain (SDOE-008936);
5. Yori Drain at Steamboat Creek (YD@SBC);
6. Boynton Slough at Steamboat Creek (BS@SBC);
7. North Truckee Drain at Big Fish Drive (NTD@BFD); and
8. Steamboat Creek at Clean Water Way (SBC@CWW).

Automated samplers at 5 of these stations (1 through 5, above) are equipped with ISCO® 750 area-velocity modules, which allow for computation of discharge rates and discharge volume for the duration of sampled events. Automated samplers are programmed to measure stormwater depth and velocity every 5 minutes and initiate sampling once an increase in depth is detected.

Rainfall depth-runoff volume rating curves are established at each urban stormwater outfall to use flow-weighted sampling techniques to collect samples at intervals of equal runoff volume. Harmel and others (2003) note that flow-weighted sampling best represents storm load because more samples are collected at higher flow rates.

The Yori Drain station (YD@SBC) can receive a significant discharge volume from the Truckee River via the Pioneer Ditch. These discharges are not based on precipitation but controlled by diversion operations. As such, it is not possible to develop rainfall-runoff rating curves to conduct flow-weighted sampling, so time-weighted sampling is used instead at this station.

The Boynton Slough station (BS@SBC) is instrumented with Campbell Scientific pressure transducers owned, operated, and maintained by NDOT. A stage to discharge relationship, as described above, is used to create a record of flow. FY2019 was the first year this monitoring station was operating and the development of the stage to

discharge relationship is ongoing. As such, the automated sampler is programmed for time-weighted sampling when used.

Steamboat Creek at Clean Water Way (SBC@CWW) and North Truckee Drain at Big Fish Drive (NTD@BFD) have automated samplers co-located with USGS stream gages. During sampling events, the automated sampler is programmed for time-weighted sampling. Sampling time intervals ranged between 30 minutes and 2 hours; sometimes, sampling intervals are changed during a sampling event to be more or less frequent to accommodate event intensity or timing changes.

Following each sampling event, the storm hydrograph and timing of discrete samples are examined at all automated sampling stations to evaluate which samples best capture different portions of the storm hydrograph. Discrete samples are divided into four composite samples, each representing a component of the hydrograph: 1) first flush, 2) rising limb, 3) peak discharge, and 4) falling limb. Physical water quality parameters are measured directly<sup>3</sup> from the source upon readying the sampler and upon retrieving samples.

#### 4.7 Calculation of Constituent Load and Yields

Constituent concentrations from grab samples only provide limited information on the range of concentrations in a single storm event for a given location at a given time. We know that grab sample concentrations over an entire hydrograph for a single event can range from one to three orders of magnitude, depending on the constituent. Ultimately, the grab sample or 'snapshot' approach leaves many gaps in the characterization of the system (McKay and others, 2013).

Calculation of constituent load for a given period is an objective for many non-point source monitoring projects and is usually a more meaningful indicator than constituent concentration. Constituent load is a measure of mass transported over time. It can only be calculated when both the constituent concentration (mass/volume of water) and discharge (volume of water/time) are known:

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<sup>3</sup> Efforts are made to measure physical and chemical water quality parameters directly from the runoff source; however, runoff may not be active at some locations (e.g., urban outfalls) upon each site visit (e.g., processing samples from an automated sampler). In these cases, parameters are measured directly from the composited samples; Some data including temperature and dissolved oxygen may therefore not be representative of the runoff source due to the residence time of samples in the sampler.

Load (lbs.) = stormwater discharge volume (cubic feet) x concentration (mg/L) x conversion coefficient

Constituent loads measured during baseflow or during a storm event can be compared to TMDLs established for the Truckee River. Furthermore, the loads can also be normalized by watershed areas to compute yields, which allows for comparison of loading rates per square mile of watershed area, referred to as “yield” and expressed as lbs./sq. mile.

#### 4.8 Quality Assurance and Quality Control

The 2020 SAP outlines a quality assurance and quality control (QA/QC) project plan. Balance followed this plan using a combination of field quality control activities and data assessment and validation techniques during the monitoring program. Field quality control activities included: a) training both members of the sampling team in stormwater sampling procedures and streamflow measurements; b) assigning a minimum of one senior-level staff person to each field team; c) adherence to USGS and EPA approved methods and procedures; c) pre-and post-event calibration of field equipment and instruments; d) field collection and analysis of duplicates and bottle blanks, and; e) complete documentation of sampling and observations.

All site visits, staff present, and observations are documented in observer logs and provided in **Appendix A**. All field equipment and instrument calibrations completed in FY2021 are in **Appendix B**.

Separately, Balance staff member who was not involved with the field activities reviewed all the collected data, calculations, and laboratory results, per the Quality Assurance and Quality Control (QA/QC) procedures in the 2020 SAP.

#### 4.9 Deviations from the Sampling and Analysis Plan

Weather conditions, hydrologic response, time of day, or need for expediency occasionally required deviations from procedures outlined in the 2020 SAP. The following are deviations from the 2020 SAP during the FY2021 monitoring year:

- Stormwater sampling excluded analysis for *E.coli* during some events because the laboratory hold times could not be met when storm sampling was conducted after hours and on weekends.
- In some cases, with automated samplers, sample collection was unsuccessful during one or more segments of the storm hydrograph (i.e., rising limb, peak

flow, etc.) due to instrument malfunction, power loss, or insufficient sample volume. These include:

- Grab samples were collected at North Truckee Drain at Big Fish Drive in lieu of automated samples during March 29, 2021 baseflow due to low stream stage which resulted in the automated sampler intake being above the water surface.
- Grab samples were collected at North Truckee Drain at Big Fish Drive in lieu of automated samples on June 3, 2021 and June 24, 2021 due to the variable nature of thunderstorm location and intensity making time based sampling of the storm hydrograph unusable.
- Only 8 of 24 samples were collected by the automated sampler at Yori Drain for the March 29-30, 2021 winter baseflow. Six bottles were composited into one laboratory bottle as per baseflow sampling procedures and the remaining two bottles were discarded due to lack of sample volume for another composite sample.
- No rising limb sample was composited for the samples collected at the Arlington urban stormwater outfall from the January 4, 2021 storm due to the flashy nature of the hydrograph and quick response to peak flow during the small storm. There were no automated samples collected during the rising limb phase of the hydrograph.
- No rising limb sample was composited for the samples collected at the Fisherman's Park II urban stormwater outfall from the January 4, 2021 storm due to the flashy nature of the hydrograph and quick response to peak flow during the small storm. There were no automated samples collected during the rising limb phase of the hydrograph.
- No rising limb sample was composited for the samples collected at the Mary Wahl Drain urban stormwater outfall from the December 14, 2020 storm due to the flashy nature of the hydrograph and quick response to peak flow during the small storm. There were no automated samples collected during the rising limb phase of the hydrograph.
- Stormwater samples were not collected at several stations due to insufficient precipitation and runoff. These include:



- No stormwater samples were collected at the following stations due to a lack of hydrologic response from precipitation:
  - Steamboat Creek at Clean Water Way
  - Yori Drain at Steamboat Creek
  - Boynton Slough at Steamboat Creek
  
- One stormwater grab sample was collected at the following stations due to a lack of hydrologic response from precipitation:
  - Whites Creek at Old Virginia Highway
  - Thomas Creek at South Meadows Parkway
  - Evans Creek at Kietzke Lane
  - Steamboat Creek at Rhodes Road
  - Steamboat Creek at The Narrows

## 5 MONITORING RESULTS FY2021

Below, we describe total annual precipitation for FY2021, characterize the storms targeted for sampling and the regional hydrologic response, and conclude with a summary of results for constituent concentrations and calculated instantaneous daily and total storm load. The tabular results and laboratory reports are provided in **Appendix C** and **Appendix D**, respectively.

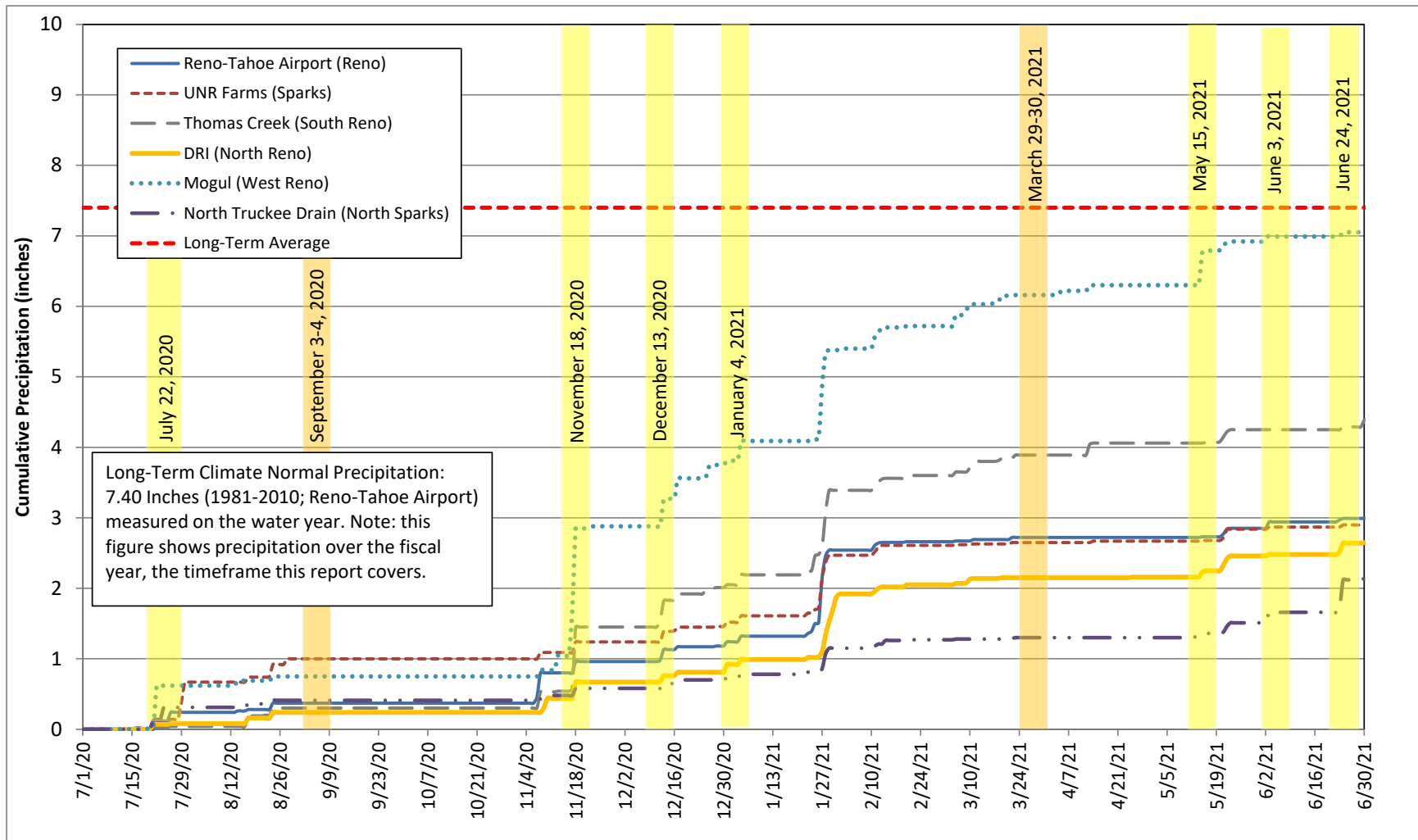
### 5.1 Precipitation Summary FY2021

Cumulative total annual precipitation from six stations across the Truckee Meadows is compared in **Figure 5-1** and highlights the spatial variability of precipitation for FY2021. FY2021 was a dry year across the Truckee Meadows, with total annual precipitation ranging from 2.14 inches in North Truckee Drain at Orr Ditch (North Sparks) to 7.05 inches in Mogul (West of Reno). Cumulative daily precipitation at the Reno Tahoe Airport (RNO) of 2.99 inches for FY2021 was the third driest year on record and less than 0.2 inches more than the driest year on record (2001) The long-term climate normal precipitation is 7.40 inches (1981-2010)<sup>4</sup> for this station.

A summary of precipitation amounts during sampled storms is in **Table 5-1**. The maximum precipitation during a sampled storm was 1.19 inches at Mogul on November 18, 2020. In that same storm 0.16 inches of precipitation were measured at the Reno-Tahoe International Airport (RNO), an example of the rain shadow effect the Carson Range imposes on the Truckee Meadows. The samples collected in July 2020, May 2021 and June 2021 were a result of thunderstorms in the Truckee Meadows and have a wide range of variability with some stations not registering any measurable precipitation, while other areas received intense precipitation and associated runoff.

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<sup>4</sup> The long-term climate normal precipitation for the Reno-Tahoe International Airport is based on the water year and not the fiscal year. We use this as a reference for total precipitation in general for the Truckee Meadows. The fiscal year used for this report and the annual precipitation values presented above are consistent with the meteorological year, from July 1 to June 30. a



**Figure 5-1 Cumulative Precipitation at 6 Different Rain Gauges, Truckee Meadows, Nevada, FY2021.** Precipitation occurrence, depths, and durations varied widely across the area. Sample events are yellow, and non-storm samples are orange.

**Table 5-1 Summary of Precipitation during Sampled Storm Events, Truckee Meadows, FY2021**

Storm Events Sampled								
Rainfall gage	Location	July 22, 2020	November 18, 2020	December 13, 2020	January 4, 2021	May 15, 2021	June 3, 2021	June 24, 2021
		(inches)						
Reno-Tahoe Airport	Reno	0.11	0.16	0.15	0.08	0.01	0.09	0.02
UNR-Farms	Sparks	0.08	0.15	0.15	0.09	0.01	0.03	0.03
DRI	North Reno	0.00	0.23	0.08	0.07	0.07	0.02	0.12
Thomas Creek	South Reno	0.01	0.88	0.28	0.14	0.00	0.00	0.04
USGS-Mogul	West Reno (Mogul)	0.59	1.19	0.38	0.28	0.47	0.00	0.06
USGS-N. Truckee Drain	North Sparks	0.02	0.10	0.07	0.05	0.04	0.15	0.39
	<i>Min</i>	0.00	0.10	0.07	0.05	0.00	0.00	0.02
	<i>Max</i>	0.59	1.19	0.38	0.28	0.47	0.15	0.39

## 5.2 Work Conducted in FY2021

Balance delivered 22 of 32 planned stormwater samples to the laboratory in FY2021 due to well below-average annual precipitation and limited runoff-generating storms in the Truckee Meadows. (**Table 5-2**). Separately, baseflow samples were collected at all the tributary stations on September 3 and 4, 2020, to characterize summer baseflow. Winter baseflow samples were collected at all tributary stations, with the exception of Alum Creek which was dry, on March 29 and 30, 2021. Summer baseflow coincides with the irrigation season (April to October). Baseflow conditions were defined as a non-storm period with a minimum of 10 consecutive days without precipitation preceding the day of sampling.

**Table 5-2 Storm Events and Baseflow Sampled in FY2021 and Stations Sampled in Each Event**

Fiscal Year 2021 (July 1, 2020 - June 30, 2021)		September 3-4, 2020	March 29-30, 2021	July 22, 2020	November 18, 2020	December 13, 2020	January 4, 2021	May 15, 2021	June 3, 2021	June 24, 2021	Storm Sample Count
Station	Station ID	Summer	Winter								
<b>Tributaries</b>											
Steamboat Cr at Rhodes Rd	SBC@RR	X	X		X						1
Steamboat Cr at Narrows	SBC@NAR	X	X		X						1
Steamboat Cr at Clean Water Way	SBC@CWW	X	X								
Whites Cr at Old Virginia Hwy	WC@OVH	X	X		X						1
Thomas Cr at S. Meadows Pkwy	TC@SMP	X	X		X						1
Evans Creek at Kietzke Ln.	EC@KL	X	X					X			1
North Truckee Drain at Orr Ditch	NTD@ORD	X	X		X			X			2
North Truckee Drain at Big Fish Dr.	NTD@BFD	X	X						X	X	2
Chalk Cr at Chalk Bluff	CC@CB	X	X		X		X				2
Alum Creek at Truckee River	AC@TR	X	Dry		X		X				2
Yori Drain at Steamboat Creek	YD@SBC	X	X								
Boynton Slough at Steamboat Creek	BS@SBC	X	X								
<b>Urban Outfalls</b>											
Oxbow Nature Park	C-24	NA	NA			X	X				2
Arlington	H-19	NA	NA	X	X		X				3
Fisherman's Park II	D-16	NA	NA			X	X				2
Mary Wahl Ditch	SDOE008936	NA	NA		X	X					2

**Notes:**

- X=Denotes that samples were collected at this station during the identified storm event
- NA=Not applicable; stormwater urban outfalls do not exhibit baseflow
- Only one grab sample collected during July 22, 2020 storm at Arlington
- Only one grab sample collected during March 2021 non-storm sampling at NTD@BFD due to low water level
- Grab sample collected for thunderstorms at NTD@BFD during June 2021

### 5.3 FY2021 Hydrologic Response

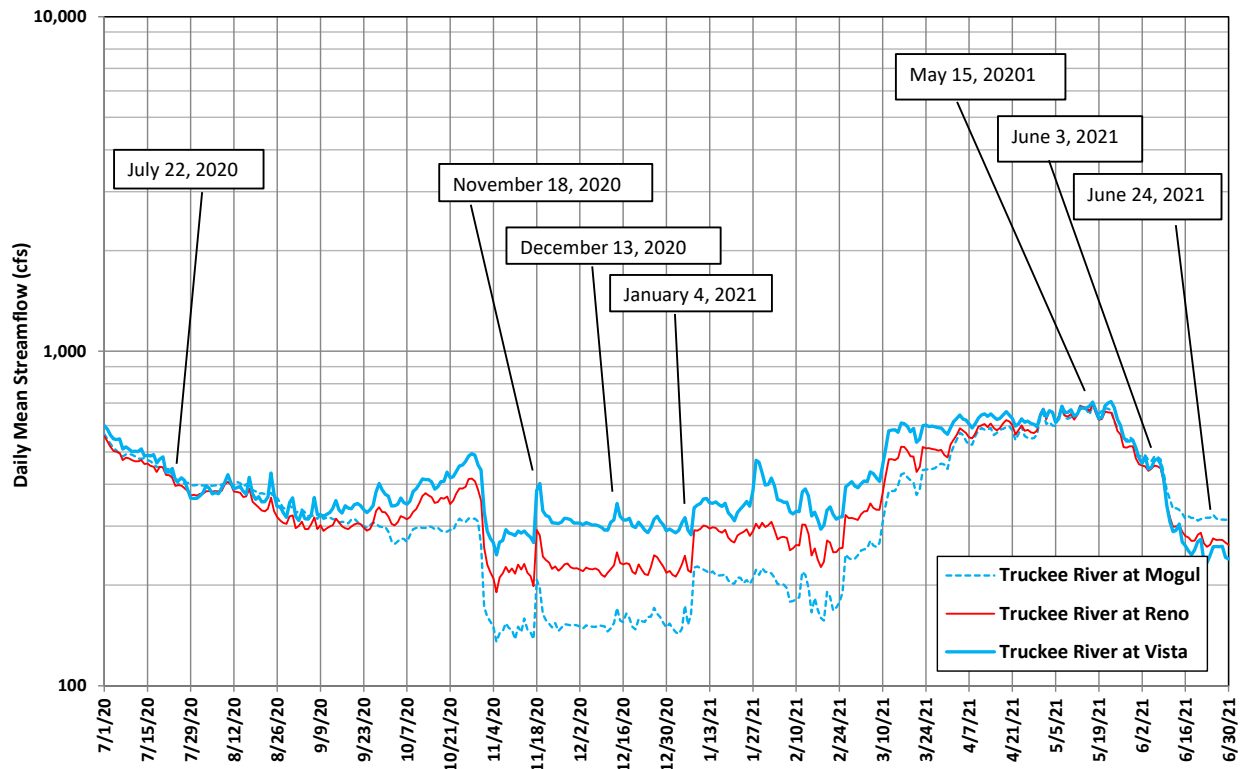
Annual streamflow hydrographs for eight tributaries to the Truckee River monitored in FY2021 are presented and described in this section. For context, we also show daily mean streamflow for the Truckee River during the monitoring period.

#### 5.3.1 TRUCKEE RIVER HYDROLOGIC RESPONSE, FY2021

**Figure 5-2** shows FY2021 daily mean streamflow for the Truckee River at three different USGS gaging stations within the Truckee Meadows: Truckee River at Mogul, Truckee River at Reno, and Truckee River at Vista. These gaging stations bracket the upstream and downstream extents of the Truckee Meadows where tributaries and urban stormwater outfalls sampled under this program discharge to the Truckee River.

Streamflow in the Truckee River through Truckee Meadows is affected precipitation and snowmelt in the upper watershed, regulated flows from 6 upstream dams, and multiple diversions. At the beginning of the fiscal year (July 1, 2021), daily streamflow was 565 cfs (at Mogul), 557 cfs (in Reno), and 599 cfs (at Vista). Annual low flows were recorded on the Truckee River in early November 2021 when daily streamflow was 135 cfs (Mogul), 190 cfs (Reno), and 246 cfs (Vista).

The November 18, 2020 storm resulted in streamflow increases over 100 cfs from baseflow conditions in the Truckee River. Storm events on December 13, 2020 and January 4, 2021 had less influence on the overall daily streamflow in the Truckee River than the November storm. In late February, streamflow in the Truckee River began to increase from upstream snowmelt resulting in annual peak flows in mid-May. Storm samples collected in May and June 2021 were in response to isolated thunderstorm activity which did not increase flow in the Truckee River. By the end of FY2021, Truckee River streamflow receded to well below that recorded at the beginning of the water year and near values not observed since 2015 (USGS 10348000).



**Figure 5-2** Truckee River streamflow during FY2021 showing dates of stormwater sampling, Truckee River at Three Stations (USGS Stations 10347460, 10348000 and 10350000), Truckee Meadows, Nevada, FY2021 As the Truckee River flows through the Cities of Reno and Sparks. It receives contributing flows from North Truckee Drain, Steamboat Creek, several other smaller tributaries, and urban stormwater outfalls.

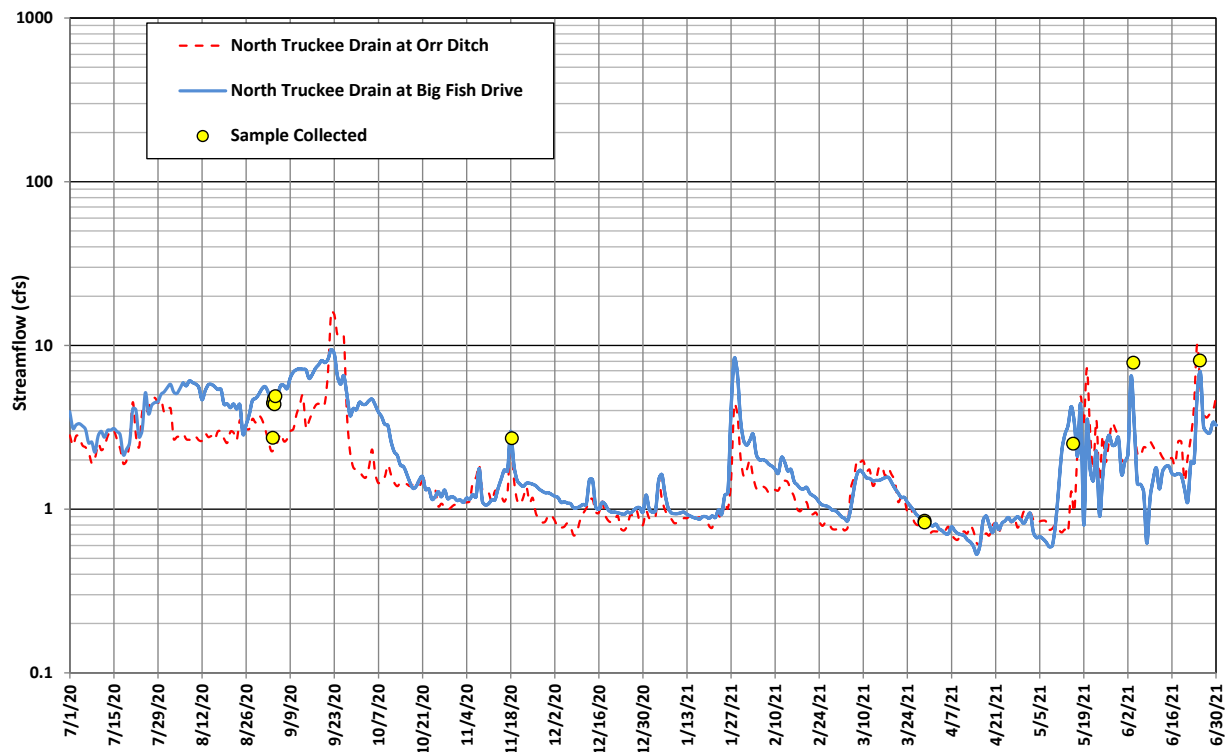
### 5.3.2 NORTH TRUCKEE DRAIN HYDROLOGIC RESPONSE, FY2021

**Figure 5-3** displays a record of daily streamflow in the North Truckee Drain (NTD) at two monitoring stations, Orr Ditch (NTD@ORD) and Big Fish Drive (NTD@BFD) and shows the dates when water quality samples were collected in FY2021. North Truckee Drain drains a large watershed with relatively low elevations and arid conditions and active urban growth. Streamflow is supported by springs, urban runoff, and irrigation return flows from Orr Ditch.

Overall, streamflow records at both stations exhibited rapid rise and fall during storm events, characteristic of an urbanized watershed. In the beginning of FY2021 baseflow in the North Truckee Drain was recorded at 1.7 cfs at NTD@ORD and 2.9 cfs downstream at NTD@BFD. Streamflow recession into October 2020 was recorded as the irrigation season ended. Streamflow remained relatively steady, near 1 cfs through the winter months with the exception of short-lived increases from precipitation events. On January 27, 2021, flows increased due to snowmelt after a large, cold frontal storm affected the region. Summer thunderstorms resulted in additional streamflow rises. The annual peak flow of 23 cfs was recorded at NTD@BFD on June 3, 2021, while the annual peak flow of 40 cfs was recorded at NTD@ORD on June 24, 2021, both the result of isolated thunderstorms.

Stormwater samples were collected at NTD@ORD on November 18, 2020 during a frontal storm. Stormwater grab samples were collected at NTD@ORD on May 15, 2021 and at NTD@BFD on June 3, 2021 and June 24, 2021 from flows resulting from convective thunderstorms. Summer baseflow samples were collected at both stations on September 3 and 4, 2020, and winter baseflow samples were collected on March 29, 2021.





**Figure 5-3 Daily Streamflow, North Truckee Drain at Orr Ditch (USGS 10348245) and Big Fish Drive (USGS 10348295), Sparks, Nevada, FY2021**

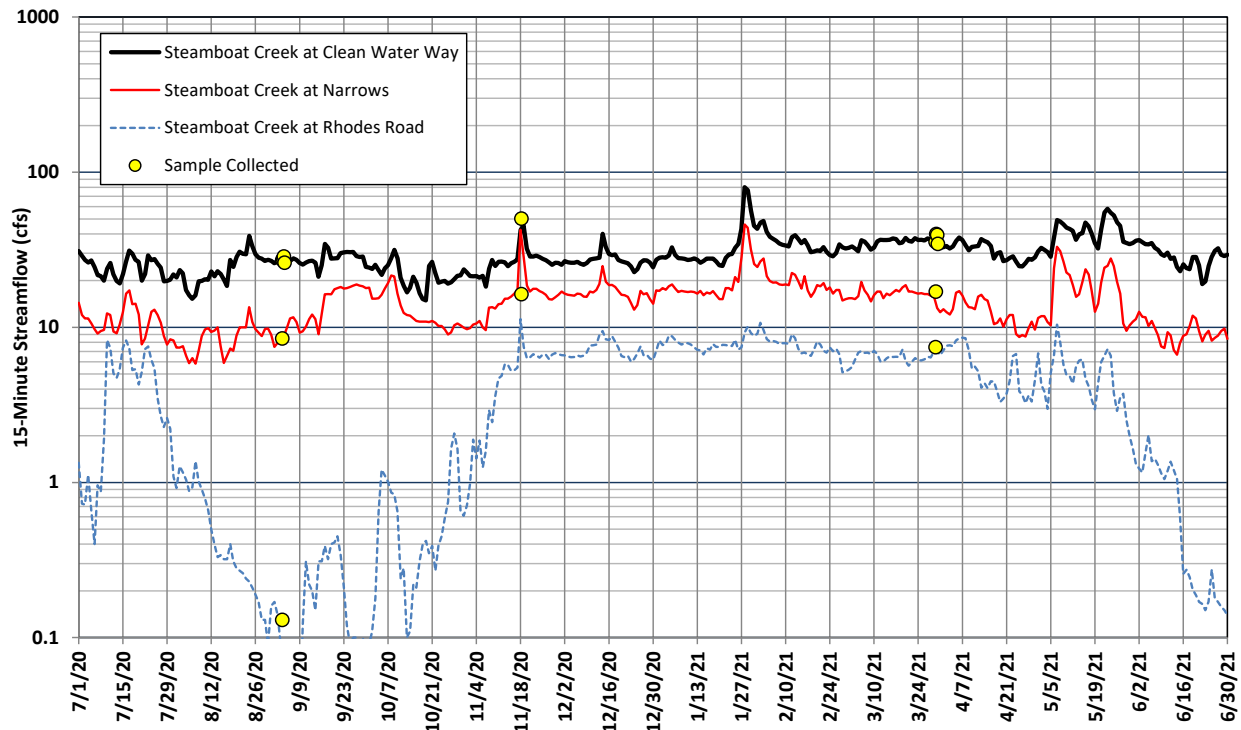
### 5.3.3 STEAMBOAT CREEK HYDROLOGIC RESPONSE, FY2021

Streamflow hydrographs for Steamboat Creek at Rhodes Road (SBC@RR), the Narrows (SBC@NAR), and Clean Water Way (SBC@CWW) are shown in **Figure 5-4**. Collection dates for water quality samples are also provided. Steamboat Creek at its confluence with Truckee River drains a 123 square mile watershed. The watershed originates in the Washoe Valley and tributaries draining the east side of the Carson Range with elevations above 10,000 feet. Streamflow is supported by snowmelt, urban runoff, irrigation returns, but can be regulated by Washoe Lake and many upstream diversions.

In the absence of measurable precipitation and snowmelt runoff, streamflow in Steamboat Creek remained relatively stable at the Narrows and Clean Water Way. Streamflow at Rhodes Road receded to very low-flow conditions in September 2020. The annual peak flow of 114 cfs at Clean Water Way was recorded on January 28, 2021, as the result of snowmelt. This peak flow rate is estimated to be approximately equal to the 1-year flow, as based on the 27-year period of record at this station (USGS 10349980).

Flows at the end of the fiscal year were approximately within the range as those recorded at the beginning of the fiscal year.

The only stormwater samples collected at Rhodes Road and the Narrows were on November 18, 2020 moderate frontal storm system. Balance sampled summer and winter baseflow from all three stations on September 3 and 4, 2020, and March 29 and 30, 2021, respectively.



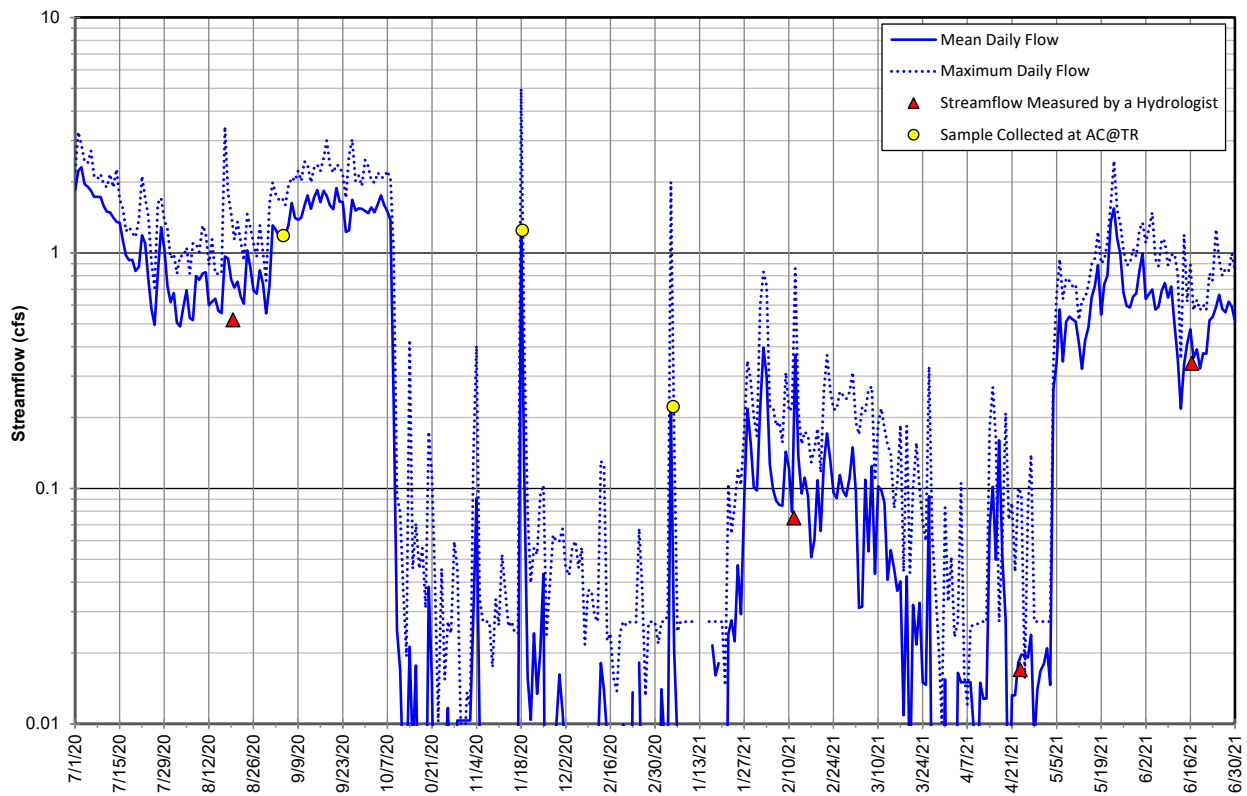
**Figure 5-4** Daily Streamflow, Steamboat Creek at Three Stations, Truckee Meadows, Nevada, FY2021 (USGS Stations 10349300, 10349849 and 10349980)

### 5.3.4 ALUM CREEK HYDROLOGIC RESPONSE, FY2021

**Figure 5-5** shows the daily streamflow record for Alum Creek at Mayberry Drive in FY2021. Collection dates of water quality samples (collected at Alum Creek at Truckee River downstream of the gaging station) are also shown.

Streamflow in Alum Creek can be affected by irrigation ditch releases from Steamboat Ditch and Lake Ditch. Streamflow on Alum Creek at the beginning of FY2021 was over 2 cfs. Streamflow receded in early October 2020 and rose in early May 2021, likely in response to irrigation operations at the golf course upstream of the gaging location. Stormwater samples were collected on November 18, 2020, and January 4, 2021. The annual peak flow of 5 cfs also occurred on November 18, 2020.

A summer baseflow water quality sample was collected on September 4, 2020. The creek was dry at the sample collection site in late March 2021 during winter baseflow sampling, and therefore was not sampled.



**Figure 5-5** Daily Streamflow, Alum Creek at Mayberry Drive, FY2021

### 5.3.5 SOUTH EVANS CREEK HYDROLOGIC RESPONSE, FY2021

**Figure 5-6** shows a daily flow record for South Evans Creek at Kietzke Lane (EC@KL) and collection dates for samples in FY2021. South Evans Creek includes a watershed with elevations above 8,000 feet. Streamflow is supported by snowmelt runoff in the upper watershed, urban runoff in the lower watershed, and irrigation returns from Steamboat Ditch and Last Chance Ditch. South Evans Creek is a tributary to Dry Creek, tributary to Boynton Slough, tributary to Steamboat Creek.

Streamflow in the beginning of the fiscal year was steady, around 2 cfs. The sudden decrease in streamflow to near 0.1 cfs in October was the result of the end of annual ditch operations. Streamflow gradually increased above 1 cfs in November before gradually receding to near 0.1 cfs again by April 2021 in the absence of snowmelt. Increases in flows to near 2 cfs again during summer months is likely associated with irrigation returns. Annual peak streamflow of 4.01 cfs was recorded on September 28, 2020.

One stormwater sample was collected at EC@KL on May 15, 2021, after isolated thunderstorms. Baseflow samples to measure ambient water quality were collected on September 4, 2020, and March 29, 2021.

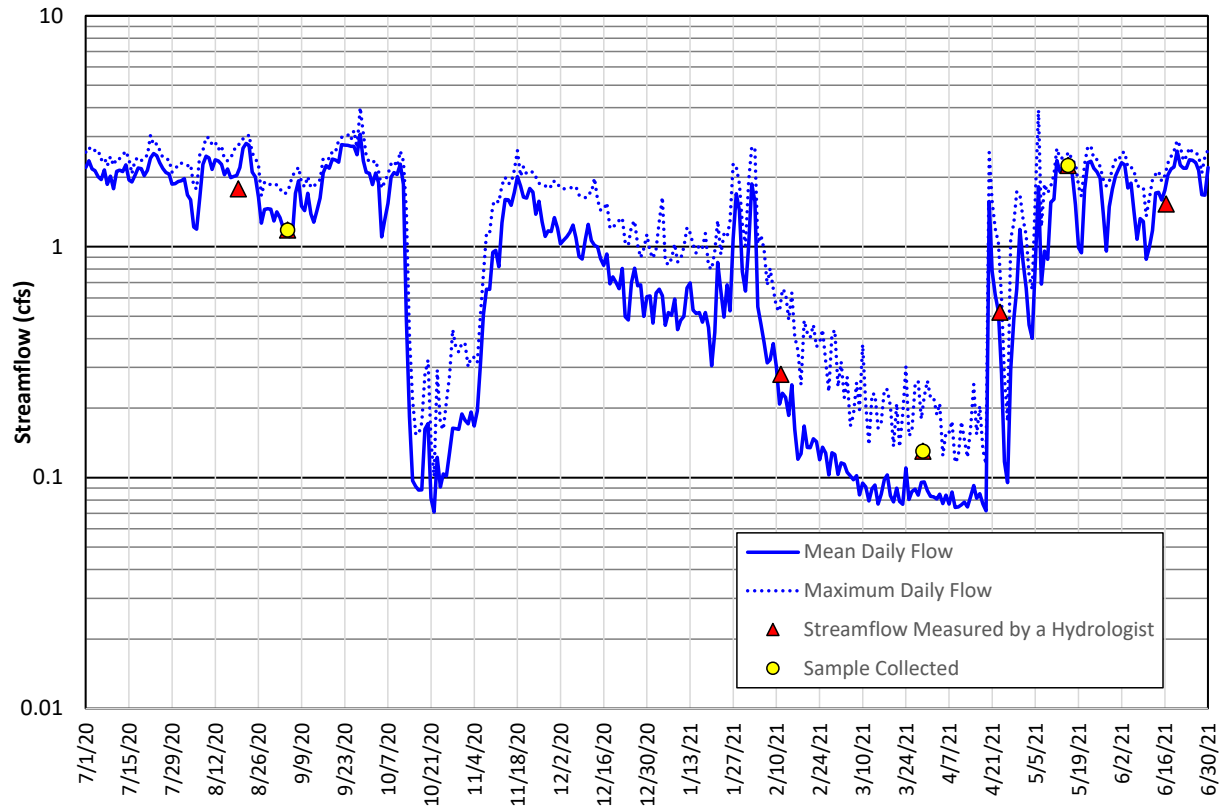


Figure 5-6 Daily Streamflow, South Evans Creek at Kietzke Lane, FY2021

### 5.3.6 THOMAS CREEK HYDROLOGIC RESPONSE, FY2021

**Figure 5-7** shows daily streamflow, manual streamflow measurements, and the collection dates for water quality samples for Thomas Creek at South Meadows Parkway (TC@SMP) in FY2021. Thomas Creek includes a watershed with elevations above 8,000 feet. Streamflow is supported by snowmelt runoff from Snowflower Mountain (10,243 feet), multiple springs in the upper watershed, urban runoff from the lower watershed, and irrigation return flows from Steamboat Ditch, Last Chance Ditch, and Lake Ditch. Streamflow measured around 1 cfs at the beginning of FY2021.

Streamflow ranged between 0.2 cfs and 3.0 cfs until a moderate frontal storm on November 18, 2021 increased flows to 4.70 cfs. The annual peak flow of 7.9 cfs was recorded on February 15, 2021. Streamflow remained above approximately 1.0 cfs through late spring until June when flows receded to the annual low of 0.08 cfs on June 29, 2021.

A single stormwater sample was collected during the November 18, 2020 storm. No other stormwater samples were collected at this station in FY2021 due to a lack of measurable precipitation and runoff response. Baseflow water quality samples were collected on September 4, 2020, and March 29, 2021.

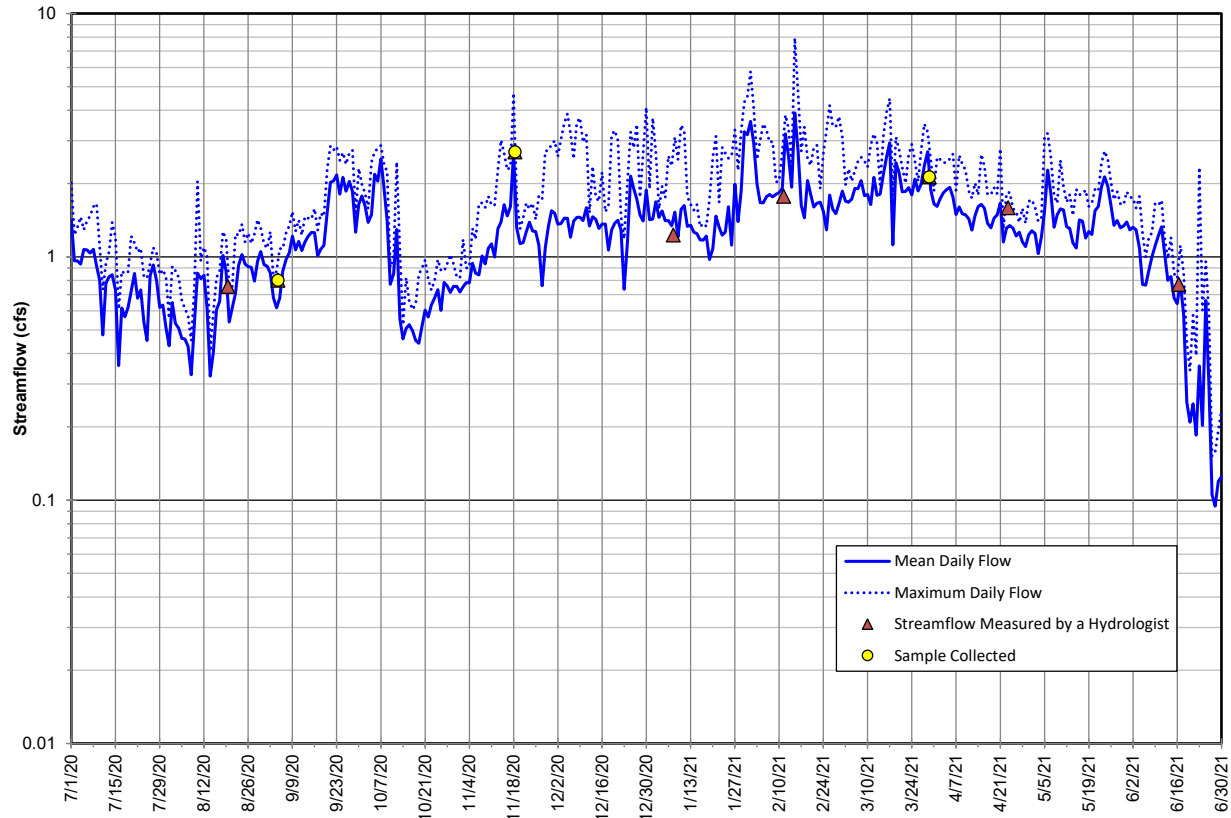


Figure 5-7 Daily Streamflow, Thomas Creek at S. Meadows Parkway, FY2021

### 5.3.7 WHITES CREEK HYDROLOGIC RESPONSE, FY2021

Figure 5-8 shows daily streamflow on Whites Creek at Old Virginia Highway (WC@OVH) and collection dates for water quality samples. This gaging station is operated and maintained by Truckee Meadows Water Authority (TMWA). Whites Creek includes a watershed with elevations above 8,000 feet. Streamflow is supported by snowmelt from Snowflower Peak (10,243 feet) and Mount Rose (10,776 feet), urban runoff in the lower watershed, and irrigation returns from Steamboat Ditch and Last Chance Ditch.

Streamflow at the beginning of the fiscal year was reported between 2 and 3 cfs and remained relatively stable throughout the year. Annual peak flow was 11 cfs and recorded on May 7, 2021. Streamflow was recorded between 0.8 and 2 cfs at the end of the fiscal year.

A stormwater sample was collected on November 18, 2020 during a moderate frontal storm. Baseflow water quality samples were collected on September 3, 2020, and March 29, 2021, and at nearly similar streamflow.

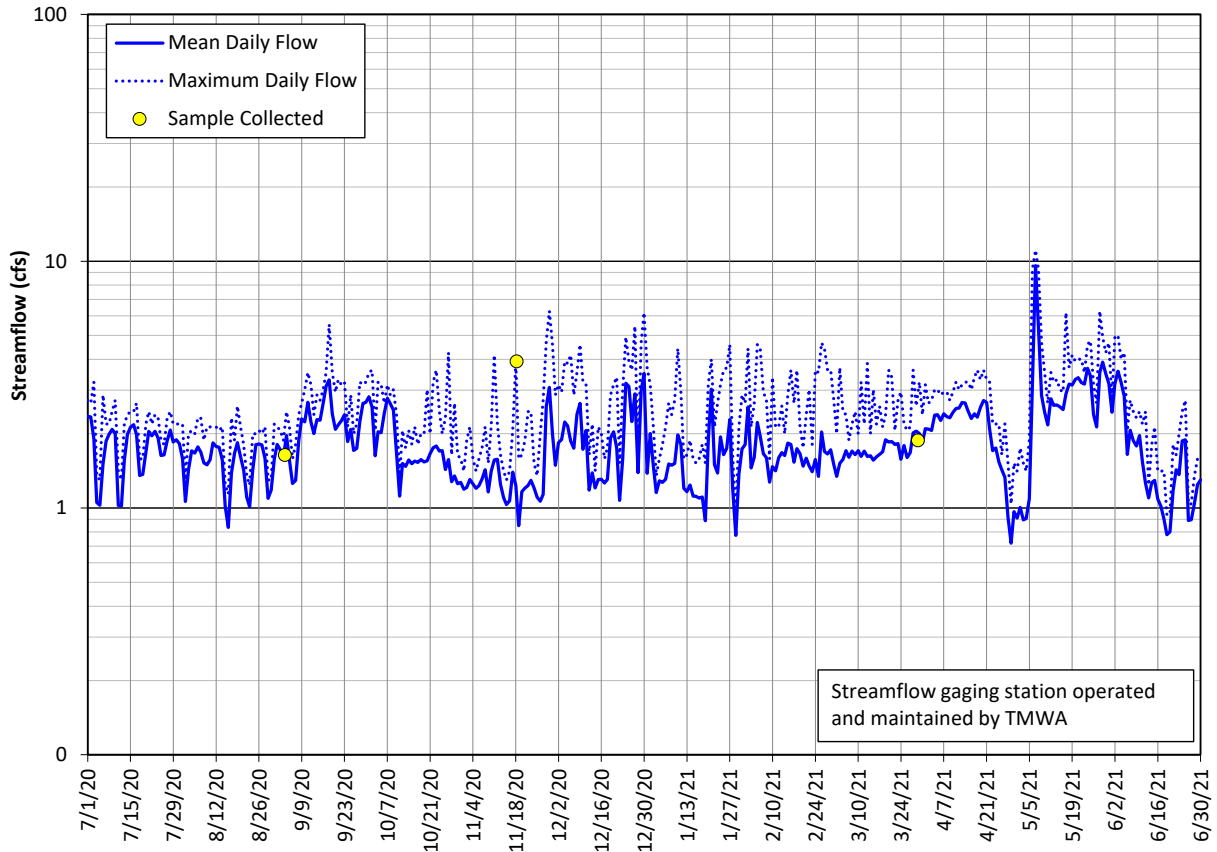


Figure 5-8 Daily Streamflow, Whites Creek at Old Virginia Highway, FY2021.



5.3.8 YORI DRAIN HYDROLOGIC RESPONSE, FY2021

Figure 5-9 shows daily discharge for Yori Drain at Steamboat Creek (YD@SBC) and collection dates for water quality samples during FY2021. Streamflow in Yori Drain can be influenced by irrigation returns from Pioneer Ditch. Streamflow ranged between 4 and 5 cfs at the beginning of FY2021 and remained relatively steady through the fiscal year, but the year ended with flows between 7 and 8 cfs. Annual peak flow of 22 cfs was recorded on October 20, 2020. The area velocity probe at the station has experienced intermittent data malfunctions. Data from October through January was not verified due to inaccessibility to the gage. Upstream debris was cleared from the channel during that time and piled at the outlet of the culvert possibly affecting the discharge measurement. The debris was cleared in February 2021 when access was restored to the site.

Summer baseflow samples were collected on September 3 and 4, 2020 and winter baseflow samples were collected on March 29, 2021.

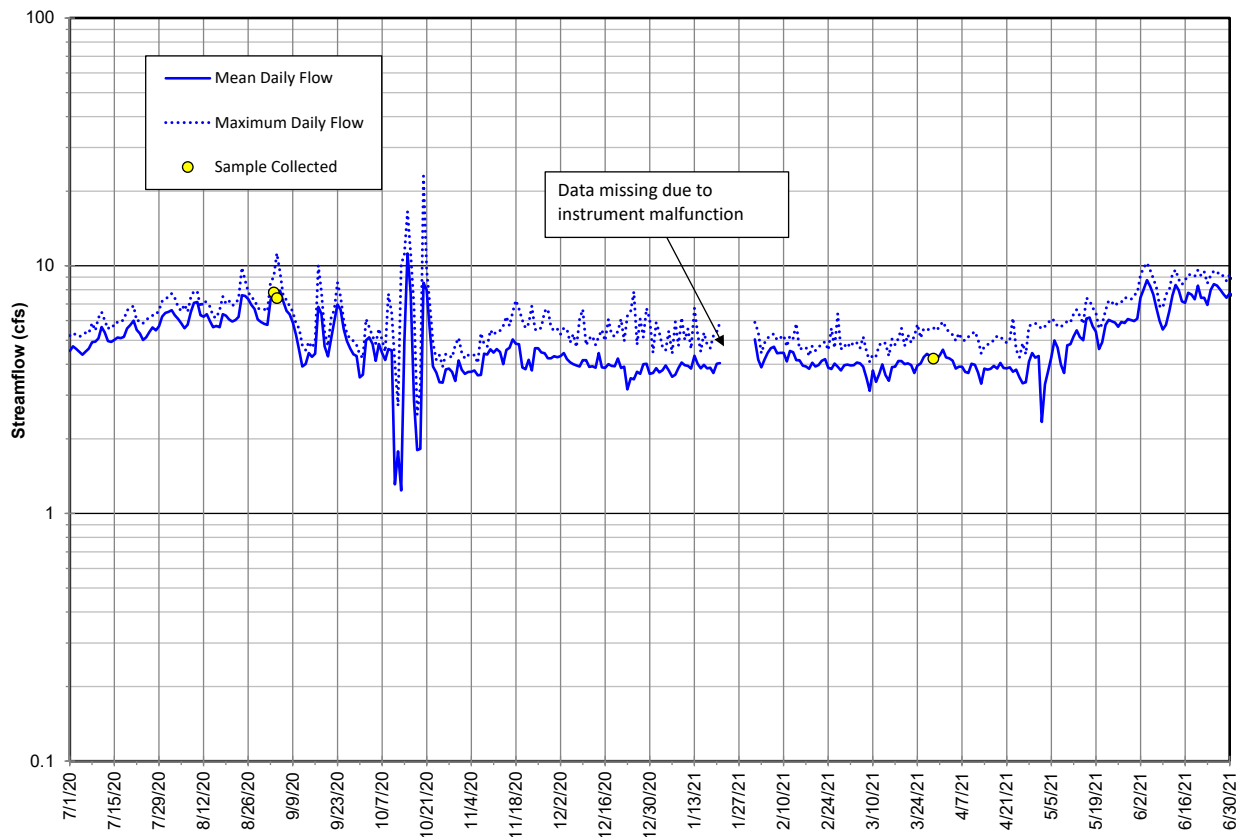


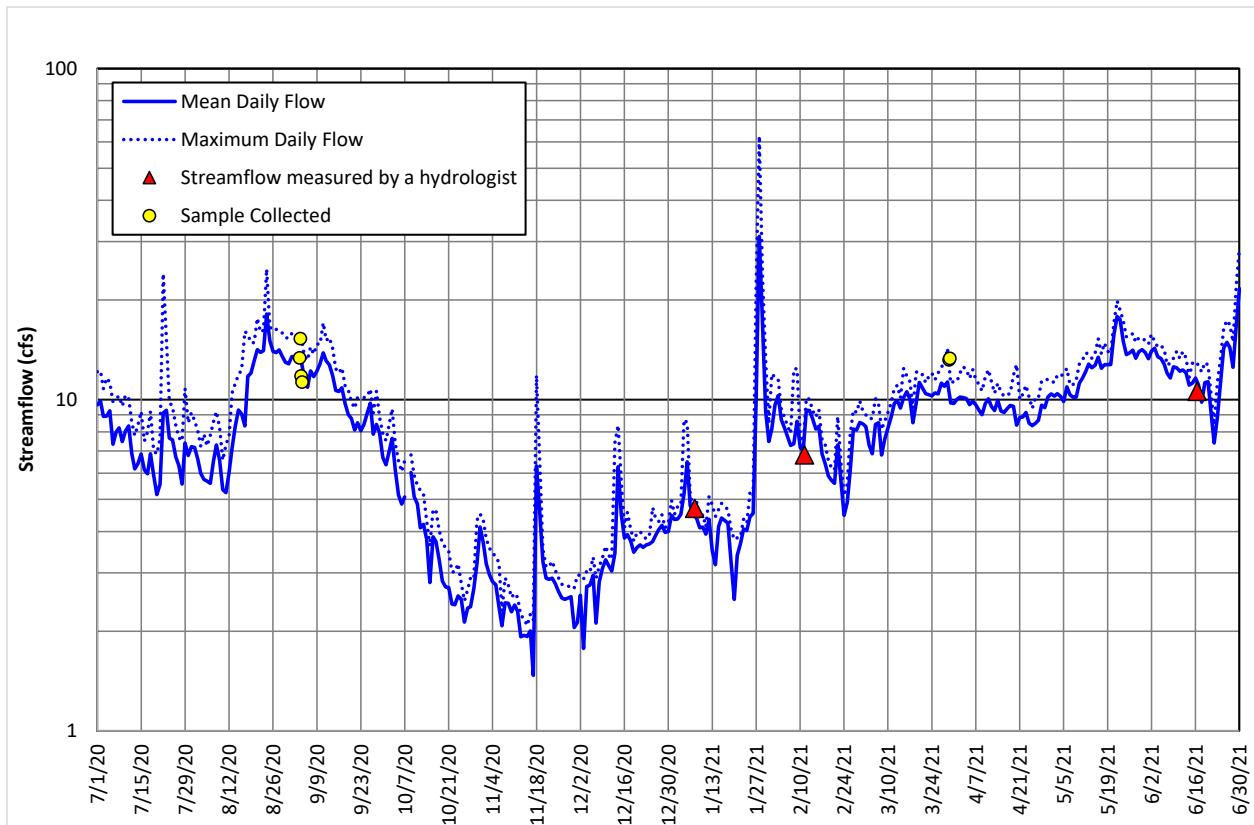
Figure 5-9 Daily streamflow, Yori Drain at Steamboat Creek, FY2021

### 5.3.9 BOYNTON SLOUGH HYDROLOGIC RESPONSE, FY2021

**Figure 5-10** shows daily streamflow, manual streamflow measurements, and the collection dates for water quality samples for Boynton Slough at Steamboat Creek (BS@SBC) in FY2021. Boynton Slough drains a 52 square mile watershed consisting of open space in the upper watershed and mixed residential and commercial use in the lower watershed. Streamflow is supported by snowmelt runoff, urban runoff, irrigation returns from Cochran Ditch, and discharge from Virginia Lake. The watershed includes South Evans Creek, discussed above.

Streamflow at the beginning of the fiscal year was between 8 and 12 cfs. Baseflow at Boynton Slough was recorded at 2 cfs, and the annual peak flow of 61 cfs was recorded on January 28, 2021, as a result of snowmelt runoff. Streamflow was recorded between 10 and 20 cfs at the end of the fiscal year, likely from irrigation returns on Cochran Ditch.

The peak flow on January 28 was the result of snowmelt and was not sampled. Baseflow samples were collected on September 3 and 4, 2020, and on March 29 and 30, 2021.



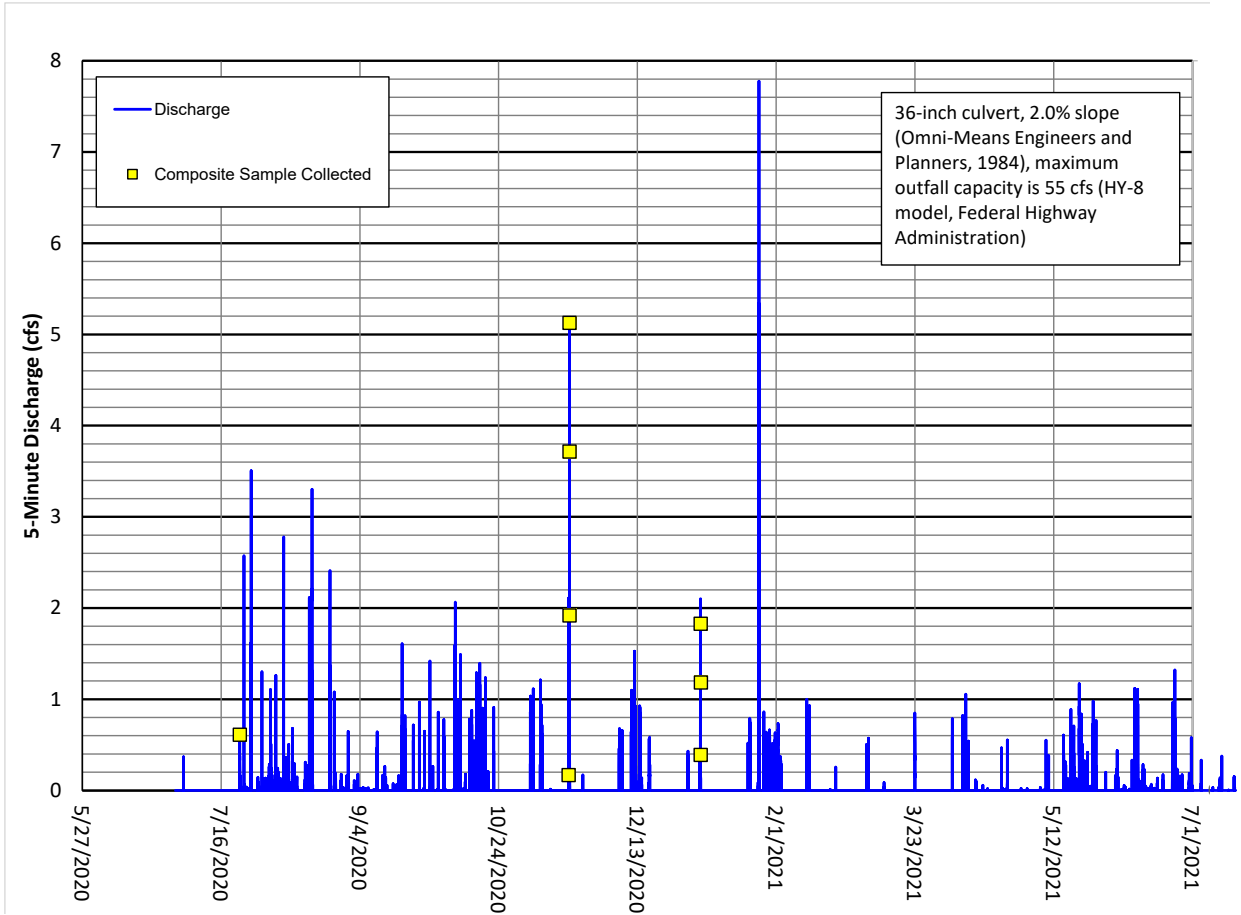
**Figure 5-10** Daily streamflow Boynton Slough (BS@SBC), FY2021

### 5.3.10 ARLINGTON (H-19) STORMWATER URBAN OUTFALL HYDROLOGIC RESPONSE, FY2021

The Arlington Station is the only one of four urban outfalls that is instrumented to record discharge year-round. The Arlington station is also equipped with telemetry to provide discharge data in real-time and serves as a tool to expedite urban outfall sampling. **Figure 5-11** shows discharge events for the urban outfall at Arlington Street (H-19) and dates of collected samples in FY2021. Arlington Street station drains a 0.32 square-mile urban watershed with both residential and commercial land-uses. Discharge is typically recorded during rainfall-runoff events but has also been recorded during non-storm events. Non-storm discharges may be illicit or the result of runoff from lawn and landscape irrigation.

Near-continuous data is reported in 5-minute intervals to capture the flashy nature of runoff from this small urban watershed. In FY2021, this station exhibited multiple short-lived rainfall-runoff events and non-precipitation events. Flows associated with these events ranged between 0.1 and 7.8 cfs.

In FY2021, the annual peak flow was roughly 7.8 cfs and occurred on January 25, 2021 as the result of a rainfall-runoff event. Stormwater runoff samples were collected on July 22, 2020 during a thunderstorm, November 18, 2020 during a moderate frontal storm and on January 4, 2021 during a small frontal storm.



**Figure 5-11 Continuous Discharge (5-minute), Arlington Urban Stormwater Outfall (H-19), FY2021**

#### 5.4 Stormwater and Baseflow Constituent Concentrations and Physical Parameters

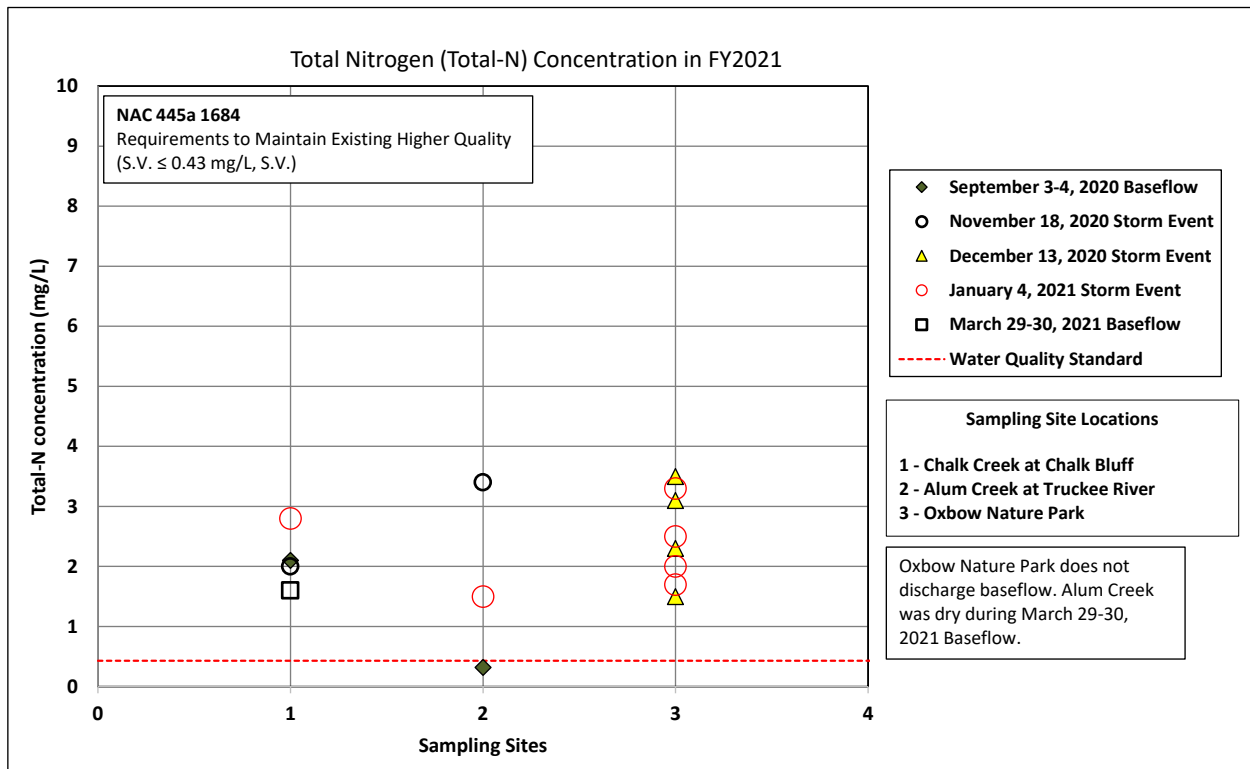
The established WQS and requirements to maintain higher quality differ from one monitoring location to another, as described in **Section 1.3**. Below we present results for both stormwater and baseflow samples collected and for each constituent analyzed in FY2021. In some cases, no WQS are established for a particular waterway location. Although there are no WQS for some sections, the water quality of the reach in question can be protective of downstream receiving waters per the Tributary Rule (NAC 445A.1239). In some cases where no WQS are established, we provide downstream water quality references for context; however, samples exceeding these downstream references do NOT imply violations of a regulatory water quality standard.

Any samples that the laboratory reported as 'not detected' are not shown in graphs. The vertical axis (concentration, mg/L) is fixed across all graphs for a particular constituent such that the reader can easily compare the same constituent across all locations.

#### 5.4.1 TOTAL NITROGEN, NITRATE, NITRITE, AND TOTAL KJELDAHL NITROGEN

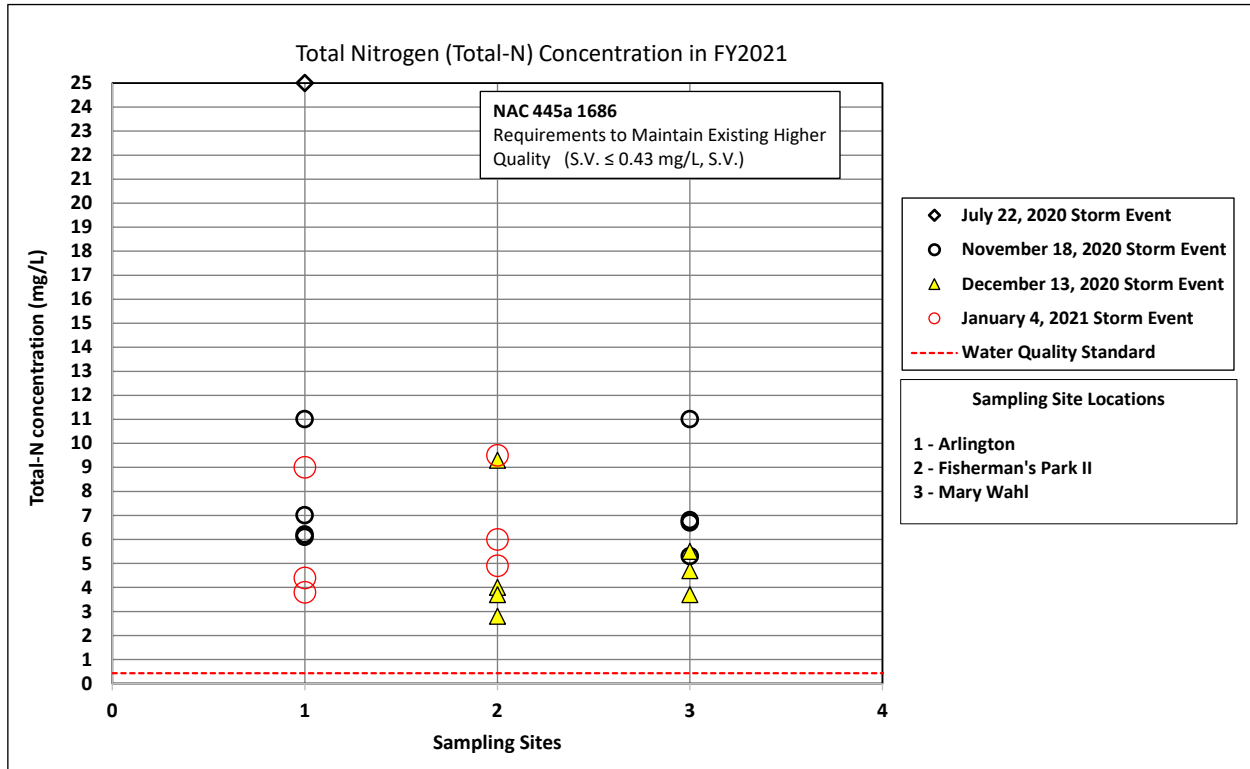
Total-N concentrations for all samples collected in FY2021 are shown in **Figure 5-12**, **Figure 5-13**, **Figure 5-14**, **Figure 5-15**, and **Figure 5-16**, grouped by their listed water body and specific WQS or numeric criteria if one exists. Stations instrumented with automated samplers may show concentrations measured in 4 different samples per sampling event which correspond to the composited samples across a storm hydrograph. All other stations will show a single concentration per grab sample or sampling event.

Total-N results from baseflow and stormwater samples collected at Chalk Creek, Alum Creek, and Oxbow Nature Park (an urban outfall) during FY2021 are shown in **Figure 5-12**. These stations discharge to the Truckee River upstream of Idlewild. Total-N concentrations ranged from not detectable to 3.4 mg/L. All but three samples exceeded established WQS for Total-N for this segment of the Truckee River above Idlewild Park ( $\leq 0.43$  mg/L, NAC 445a. 1684). The November 18, 2020 stormwater sample collected at Alum Creek was the highest measured in this segment (3.4 mg/L). Alum Creek was dry during winter baseflow sampling.



**Figure 5-12 Total-N Concentrations in Tributaries and an Urban Stormwater Outfall to the Truckee River upstream of Idlewild, FY2021**

In FY2021 Total-N was detected in all storm event samples collected from three urban stormwater outfalls that discharge to the Truckee River between East McCarran Boulevard and Idlewild (see **Figure 5-13**). All sample concentrations exceeded WQS ( $\leq 0.43$  mg/L) in this segment of the Truckee River and ranged from 2.8 mg/L to as high as 25 mg/L. The highest concentration (25 mg/L) was collected in a single grab sample during a July 22, 2020, thunderstorm from the Arlington station. Urban outfalls do not discharge baseflow and were therefore not sampled for baseflow conditions.



**Figure 5-13 Total-N Concentrations in Urban Stormwater Outfalls to the Truckee River from E. McCarran upstream to Idlewild, FY2021**

In FY2021 Total-N was detected in all stormwater and baseflow samples collected from the North Truckee Drain, a tributary to the Truckee River upstream of Lockwood, as shown in **Figure 5-14**. All samples exceeded WQS for this segment of the Truckee River ( $\leq 1.2$  mg/L) and ranged from 1.8 mg/L to 7.2 mg/L.

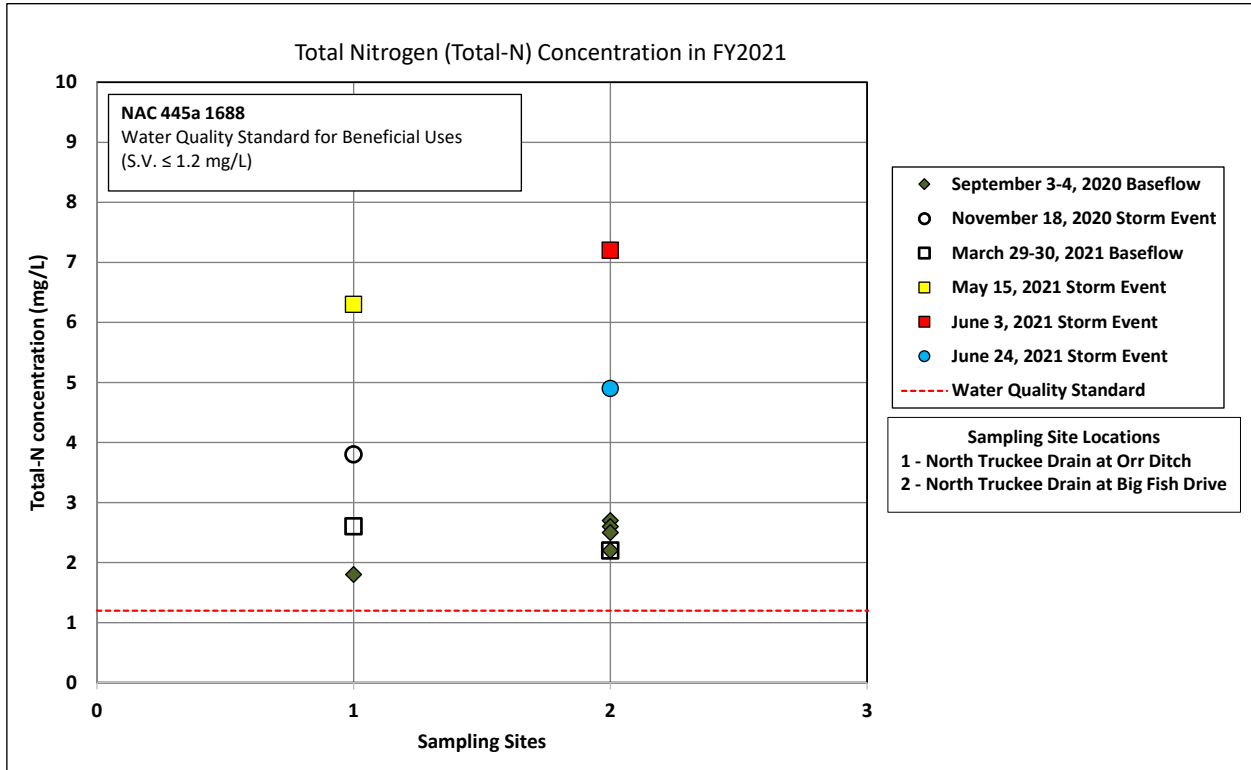


Figure 5-14 Total-N Concentrations in the North Truckee Drain, FY2021



In FY2021 Total-N concentrations from stormwater and baseflow samples collected in Steamboat Creek and its tributaries ranged from 0.37 mg/L to 3.2 mg/L, as shown in **Figure 5-15**. There are no Total-N WQS for Steamboat Creek. The highest concentration (3.2 mg/L) was measured at Boynton Slough during winter baseflow and was higher than stormwater samples collected at Rhodes Road, the Narrows, and Thomas Creek.

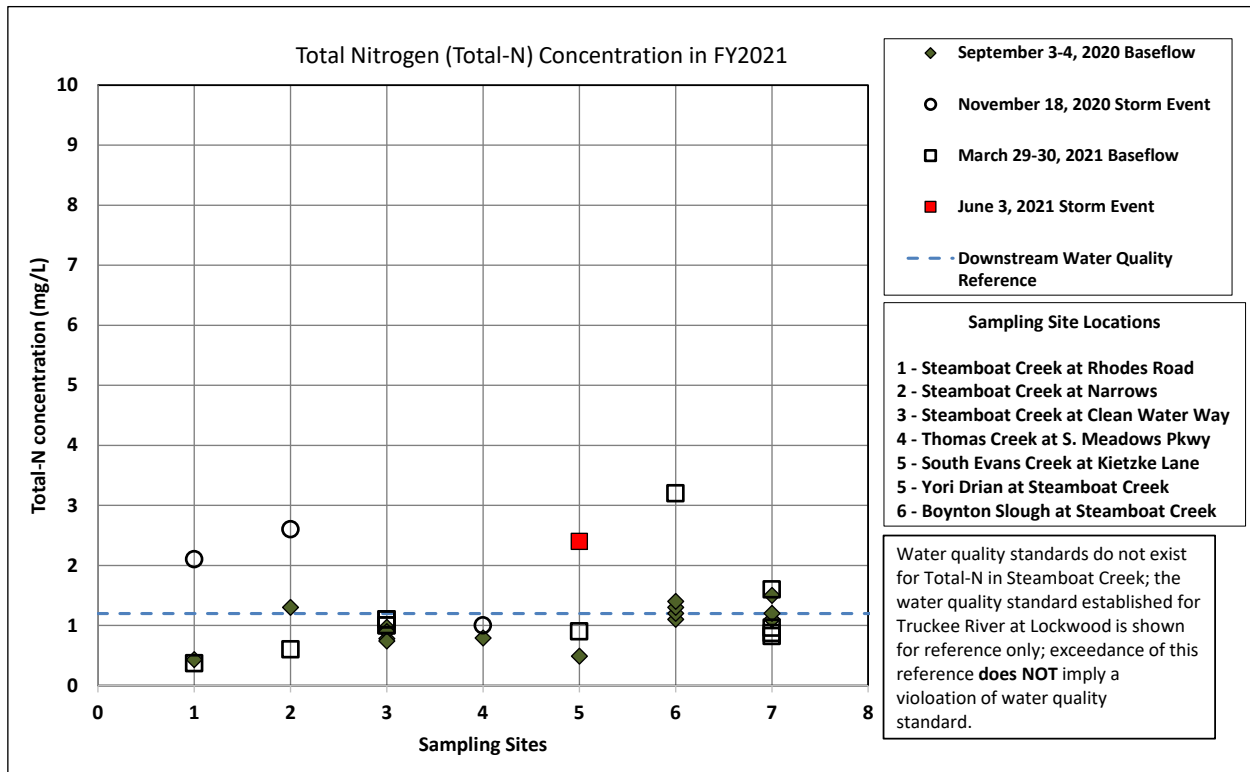
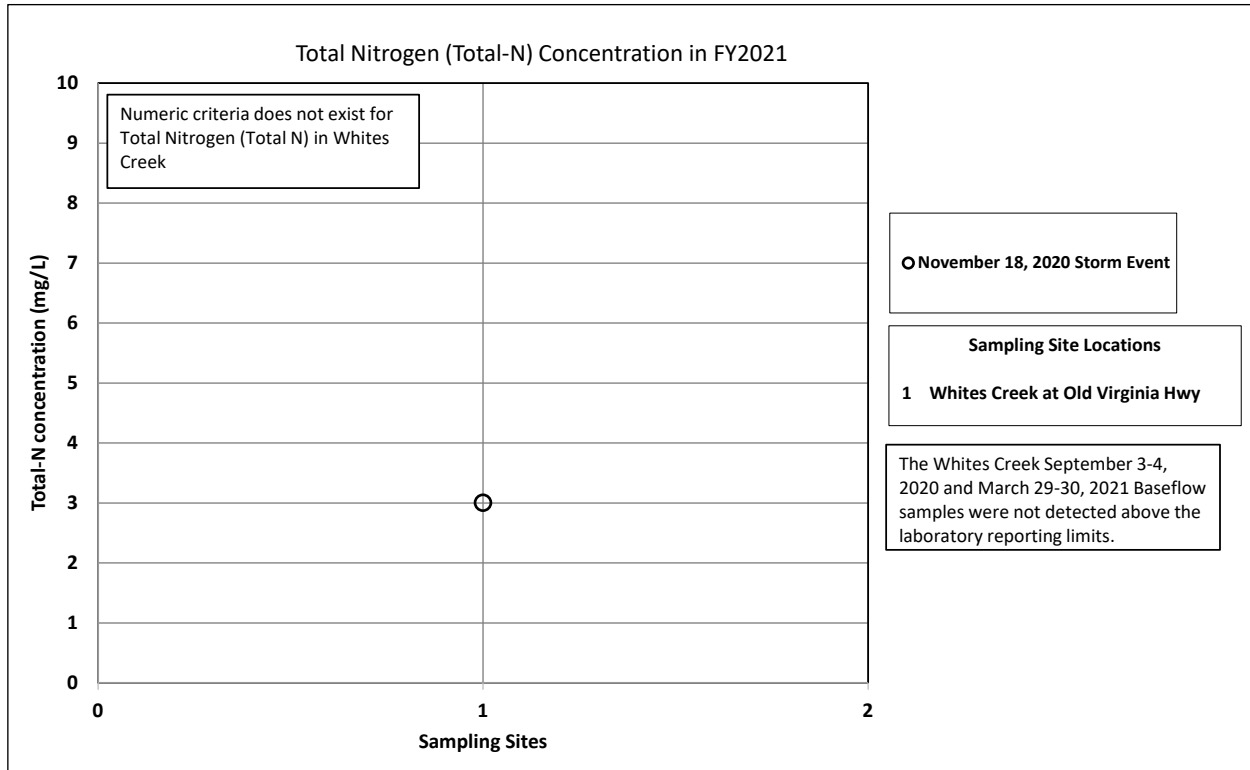


Figure 5-15 Total-N Concentrations in Steamboat Creek and Tributaries, FY2021

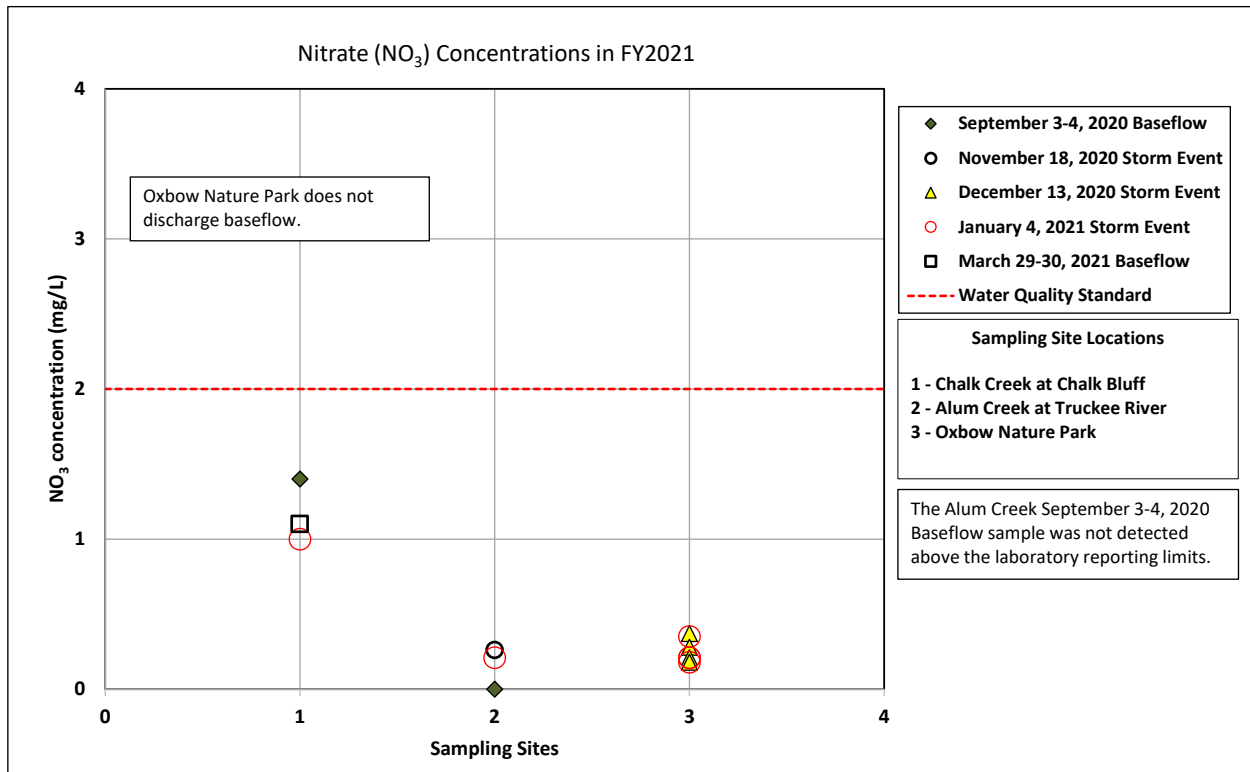
Only one stormwater sample was collected at Whites Creek in FY2021 with a concentration of 3.0 mg/L (**Figure 5-16**). Total-N was not detected in baseflow samples collected in both September 2020 and March 2021. There is no Total-N WQS for Whites Creek.



**Figure 5-16 Total-N Concentrations in Whites Creek, FY2021**

Analysis for nitrate (NO<sub>3</sub>) is required only at selected stations (as per the 2020 SAP); however, laboratory analysis of NO<sub>3</sub> on all samples is used to calculate Total-N. We therefore present NO<sub>3</sub> results from all stations/samples in **Figure 5-17**, **Figure 5-18**, **Figure 5-19**, **Figure 5-20**, and **Figure 5-21**, grouped by their listed water body and specific numeric criteria.

FY2021 NO<sub>3</sub> met the WQS (S.V. = 2.0 mg/L) in all samples from sampling locations that discharge to the Truckee River upstream of Idlewild. Concentrations ranged from 0.18 mg/L to 1.4 mg/L (**Figure 5-17**). NO<sub>3</sub> was not detected in summer baseflow at Alum Creek. Alum Creek was dry during the winter baseflow sampling period.



**Figure 5-17 Nitrate Concentrations in Tributaries and an Urban Stormwater Outfall to the Truckee River Upstream of Idlewild, FY2021**

In FY2021 NO<sub>3</sub> concentrations measured in stormwater samples from urban stormwater outfalls between E. McCarran and Idlewild ranged between 0.32 mg/L and 3.9 mg/L (Figure 5-18). One sample exceeded the WQS established for this segment (S.V. = 2.0 mg/L).

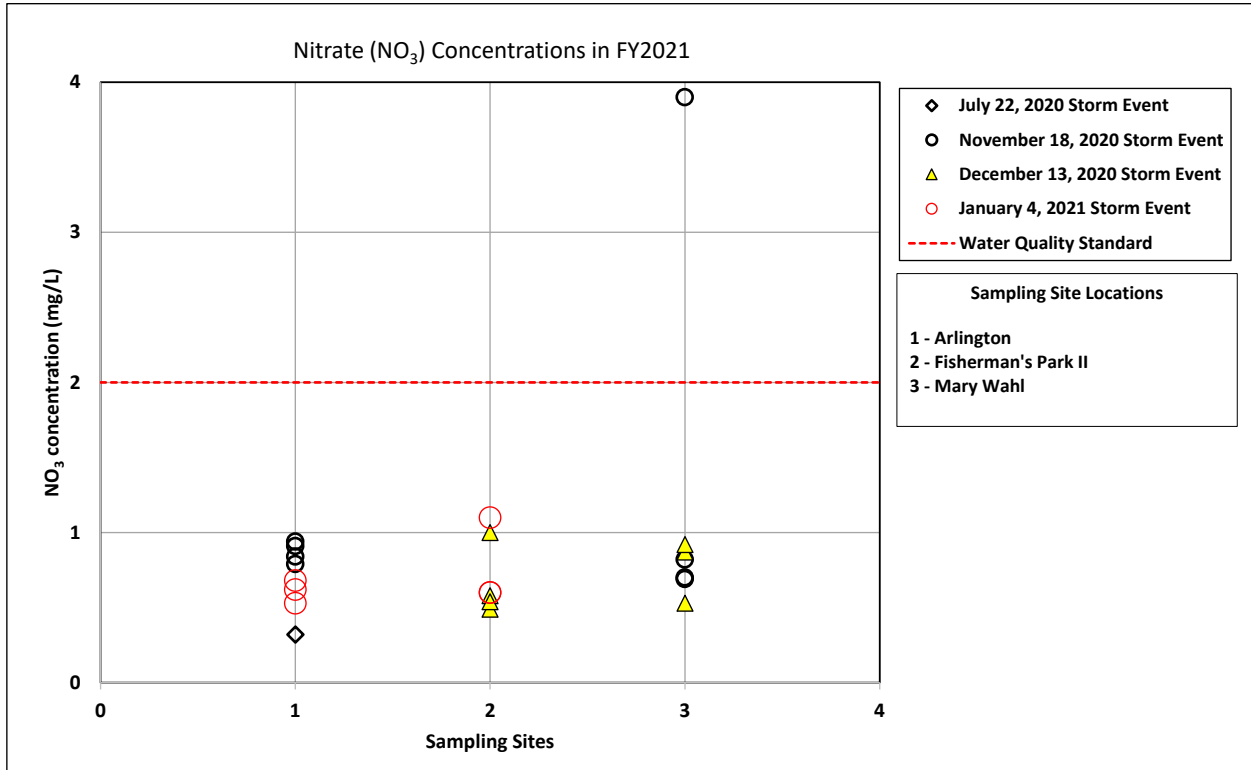


Figure 5-18 Nitrate Concentrations in Urban Stormwater Outfalls to the Truckee River from Idlewild downstream to E. McCarran, FY2021

In FY2021 NO<sub>3</sub> concentrations measured from stormwater and baseflow samples collected in North Truckee Drain, a tributary to the Truckee River upstream of Lockwood, ranged between 0.58 mg/L and 1.9 mg/L and all samples met the WQS established for this tributary (**Figure 5-19**).

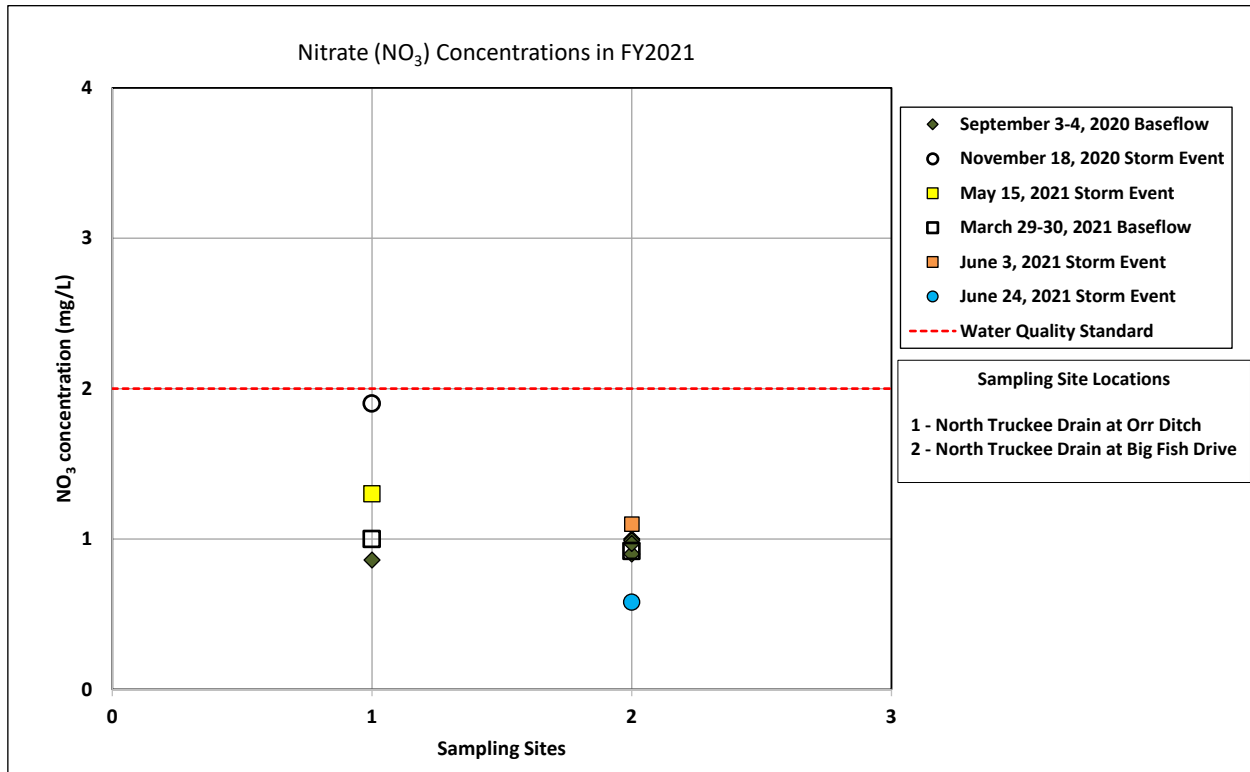
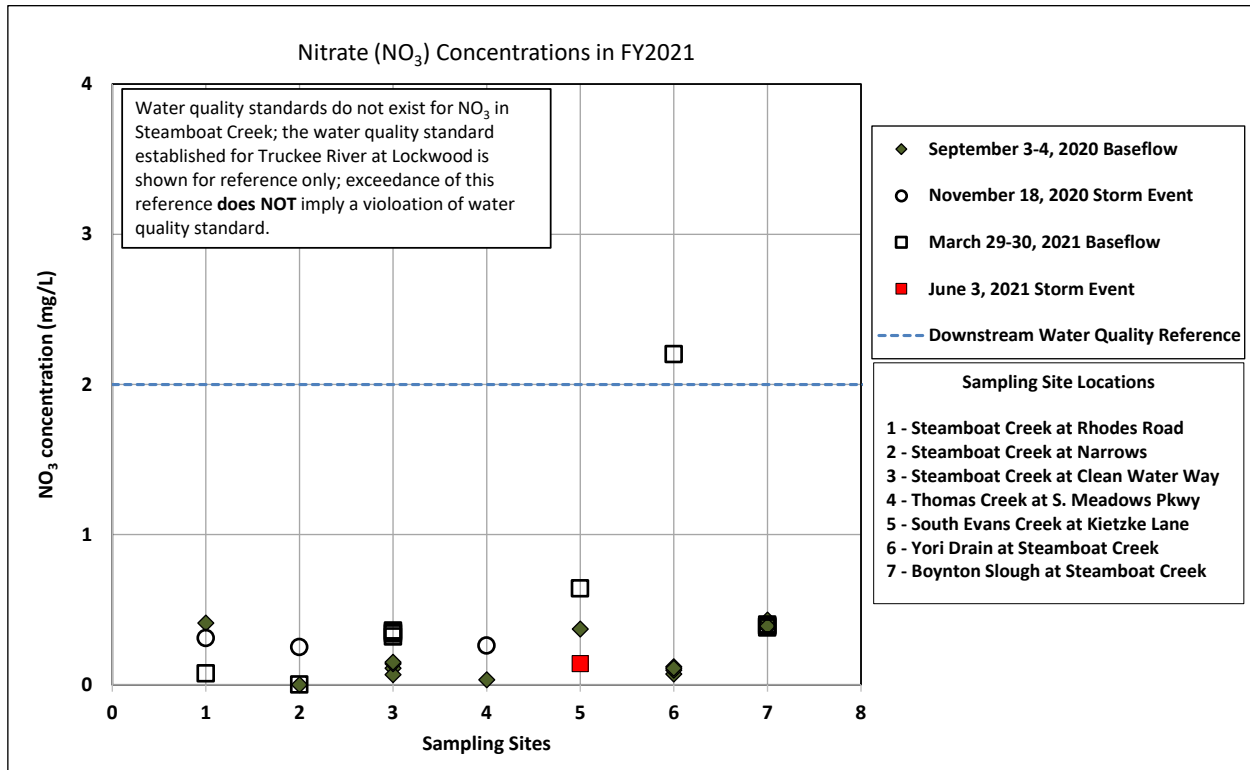


Figure 5-19 Nitrate Concentrations in the North Truckee Drain, FY2021

FY2021 NO<sub>3</sub> concentrations measured in samples collected at three different stations in Steamboat Creek and four tributaries to Steamboat Creek ranged from 0.03 mg/L to 2.2 mg/L. (**Figure 5-20**). The highest NO<sub>3</sub> concentrations were measured in Yori Drain during winter baseflow.



**Figure 5-20 Nitrate Concentrations in Steamboat Creek, FY2021**

One stormwater sample was collected at Whites Creek at Old Virginia Highway during FY2021 (**Figure 5-21**). The concentration was 0.34 mg/L. There are no WQS for NO<sub>3</sub> on this tributary section. NO<sub>3</sub> was not detected in summer or winter baseflow samples.

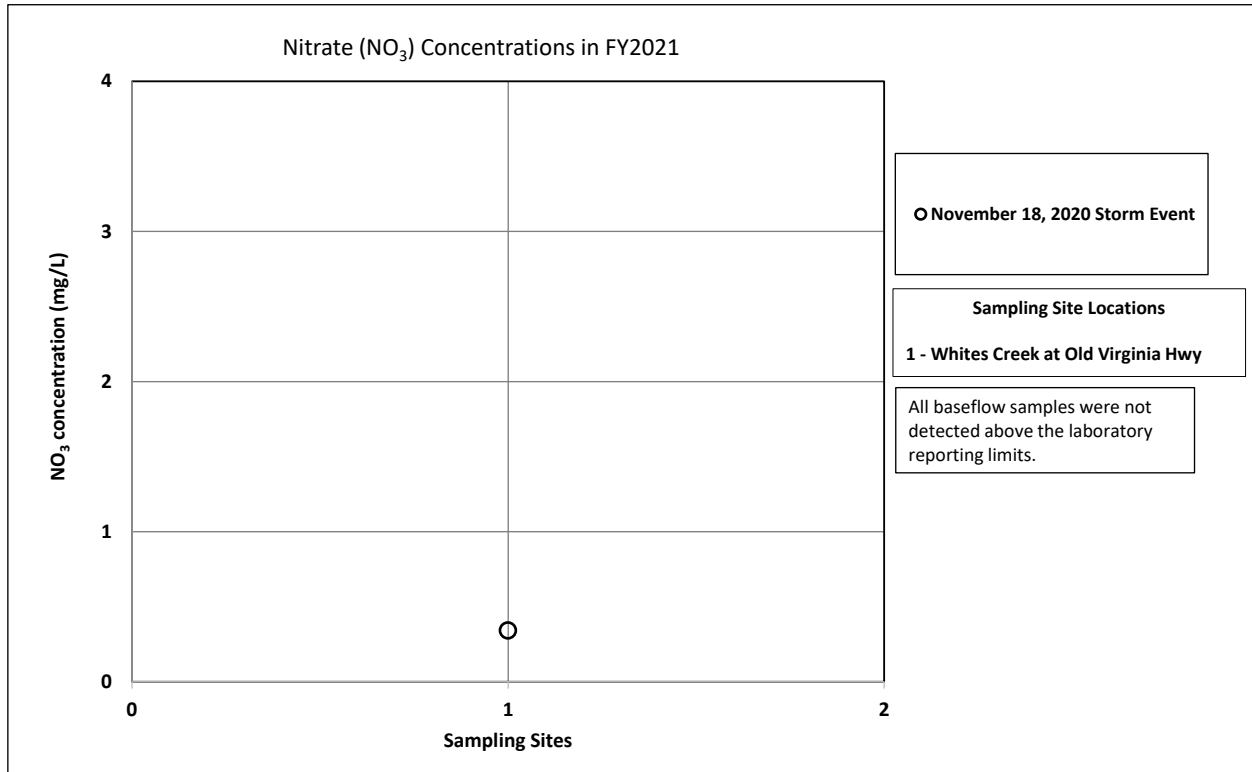
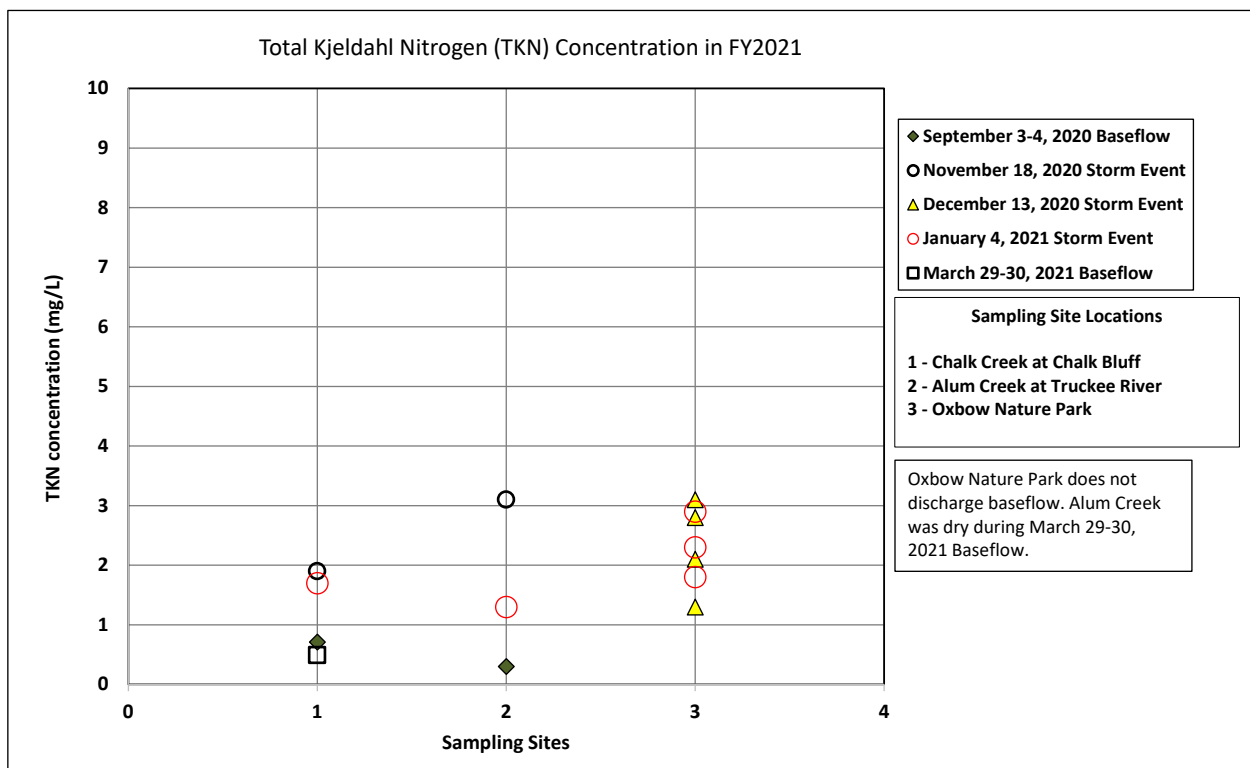


Figure 5-21 Nitrate Concentrations in Whites Creek, FY2021

Total Kjeldahl Nitrogen (TKN) concentrations in stormwater and baseflow samples collected in FY2021 are shown in **Figure 5-22, Figure 5-23, Figure 5-24, Figure 5-25, and Figure 5-26**, grouped by their listed water body. Numeric criteria do not exist for TKN in the listed water bodies monitored under this program or in the Truckee River.

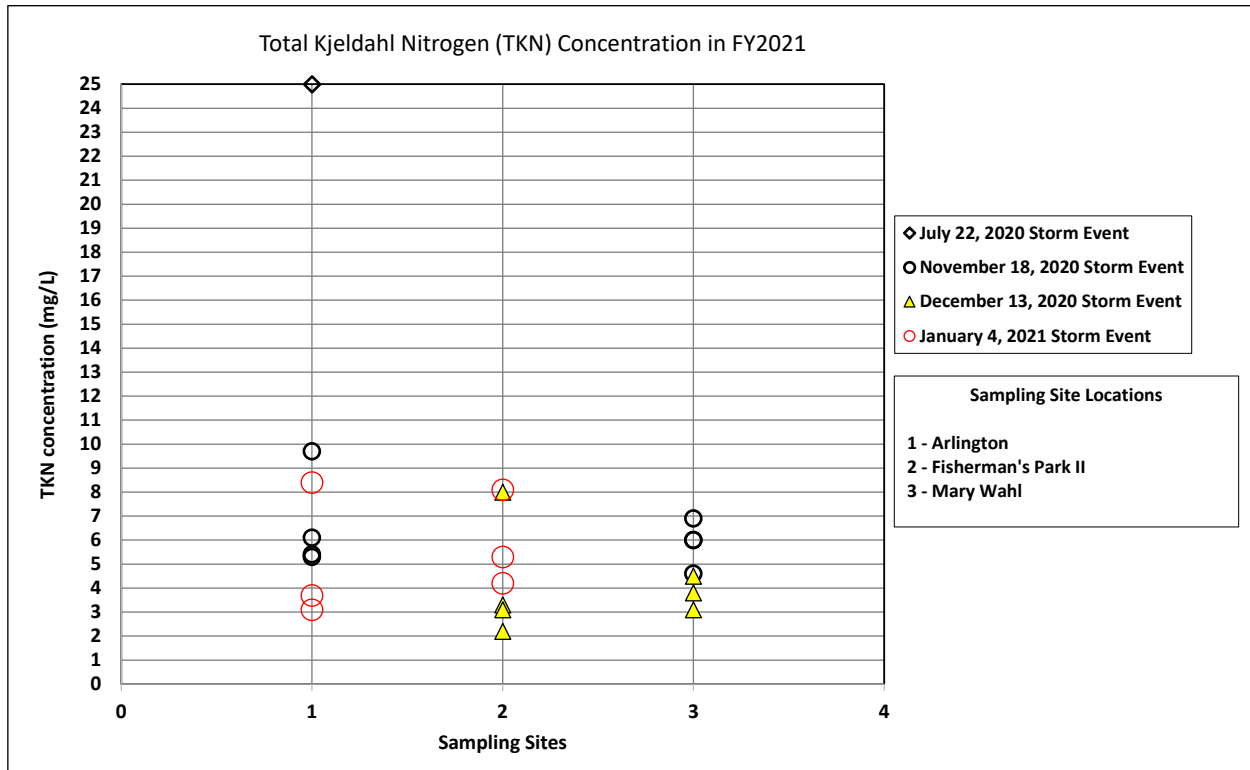
In FY2021 TKN concentrations measured in two tributaries and one urban stormwater outfall which discharge to the Truckee River upstream of Idlewild ranged from 0.3 mg/L to 3.1 mg/L (**Figure 5-22**). The highest concentrations were detected in stormwater from Alum Creek at Truckee River (3.1 mg/L) during the November 18, 2020 storm event and Oxbow Nature Park (2.9 mg/L) during the January 4, 2021 storm event.



**Figure 5-22 TKN Concentrations in Tributaries and an Urban Stormwater Outfall to the Truckee River upstream of Idlewild, FY2021**



In FY2021 TKN concentrations measured from samples collected in three urban outfalls that discharge to the Truckee River between E. McCarran and Idlewild ranged between 2.2 mg/L and 25 mg/L (**Figure 5-23**). The highest concentration (25 mg/L) was associated with a single grab sample collected on July 22, 2020, at the Arlington outfall.



**Figure 5-23** TKN Concentrations for Urban Stormwater Outfalls to the Truckee River from Idlewild downstream to E. McCarran, FY2021

FY2021 TKN concentrations measured from samples collected in the North Truckee Drain ranged between 0.9 mg/L and 6.2 mg/L (**Figure 5-24**). The highest concentrations (4.2 mg/L to 6.2 mg/L) were from grab samples collected during spring and early summer thunderstorms.

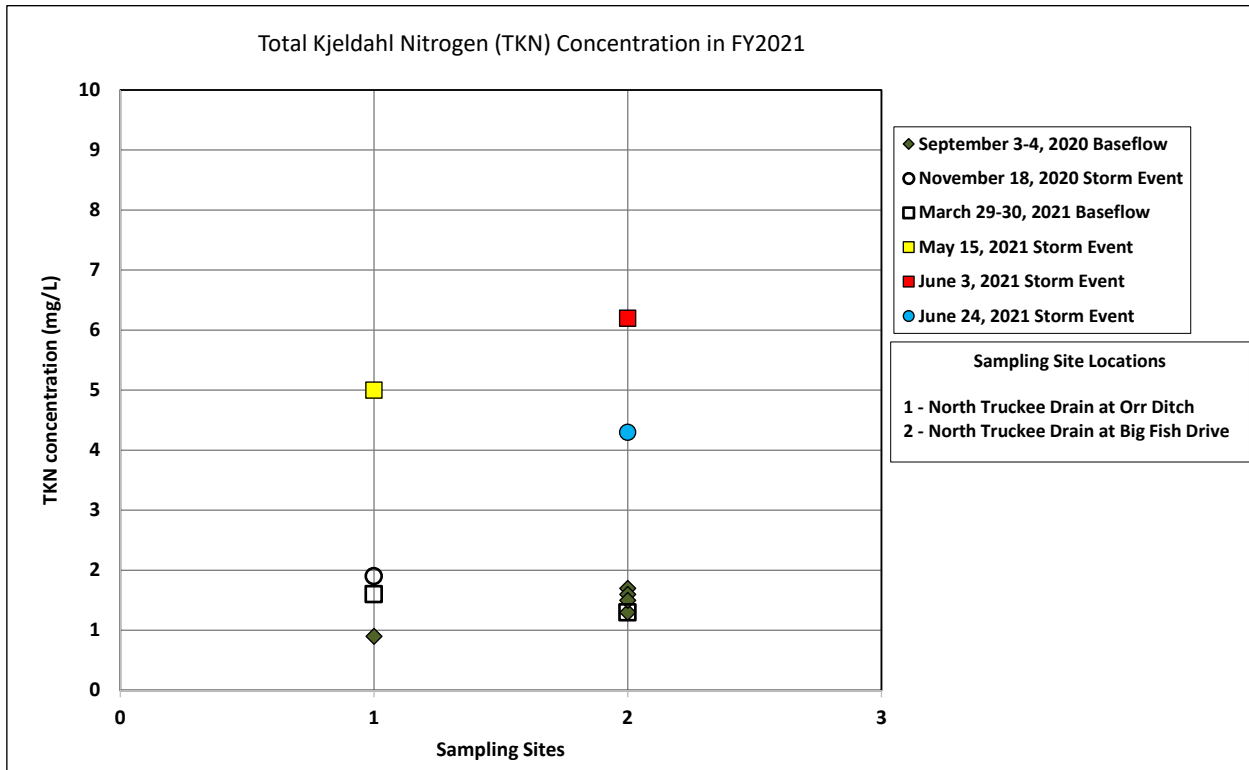


Figure 5-24 TKN Concentrations in the North Truckee Drain, FY2021

In FY2021 TKN concentrations measured from samples collected at three different stations in Steamboat Creek and four tributaries ranged from 0.20 mg/L to 2.3 mg/L (**Figure 5-25**). The highest concentration (2.3 mg/L) was measured in samples taken from S. Evans Creek during a June 3, 2021 storm event.

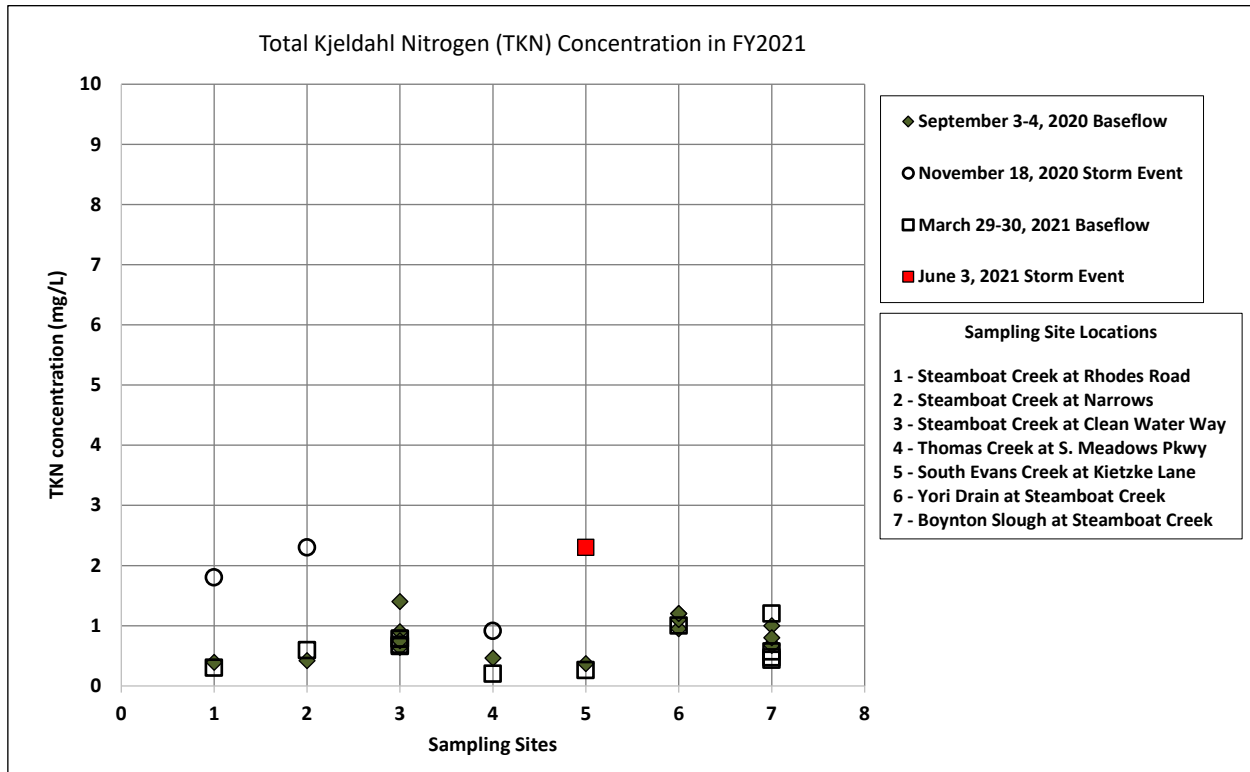
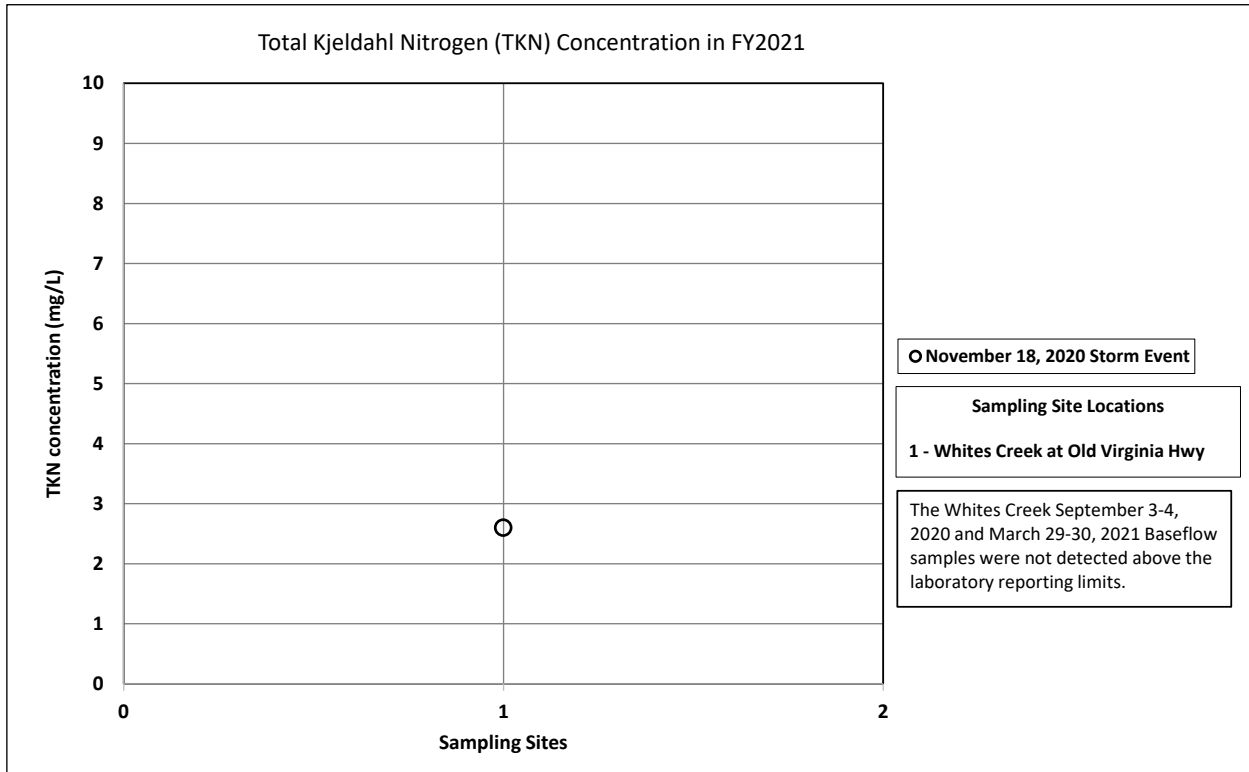


Figure 5-25 TKN Concentrations in Steamboat Creek and Tributaries, FY2021

FY2021 TKN concentration measured from a single stormwater sample collected in Whites Creek was 2.6 mg/L (**Figure 5-26**). TKN was not detected above laboratory detection limits in baseflow samples.

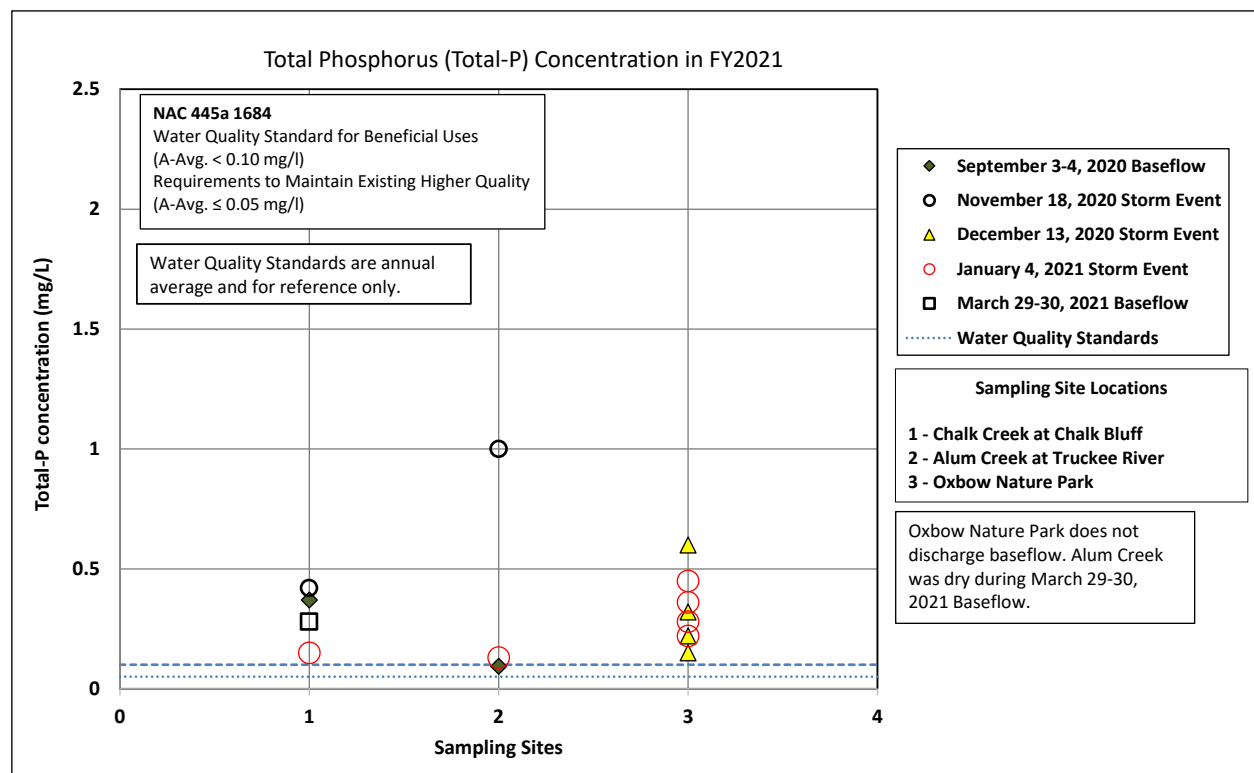


**Figure 5-26** TKN Concentrations in Whites Creek, FY2021

### 5.4.2 TOTAL PHOSPHORUS AND ORTHO PHOSPHATE

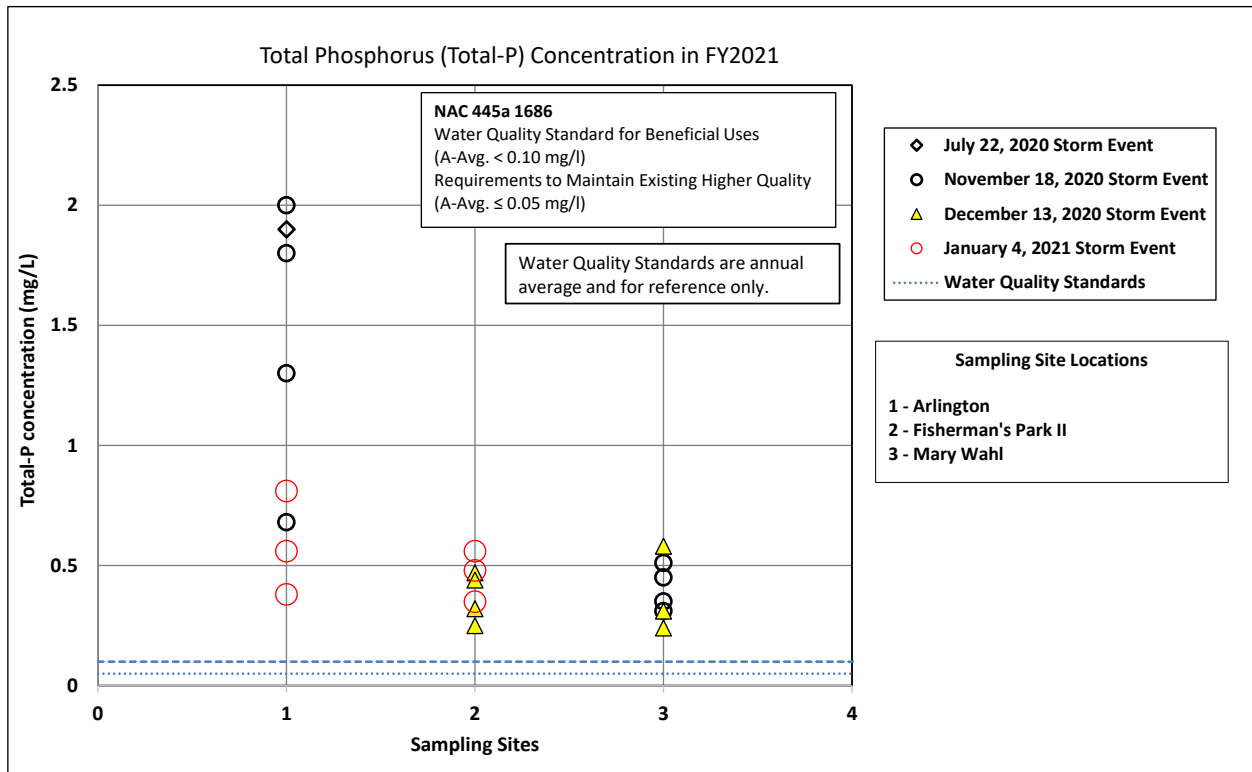
Total-P concentrations for stormwater runoff and baseflow samples collected in FY2021 are shown in **Figure 5-27**, **Figure 5-28**, **Figure 5-29**, **Figure 5-30**, **Figure 5-31**, and **Figure 5-32**, grouped by their listed water body. Single value (S.V.) WQS do not exist for Total-P in most of the tributaries monitored. Where no S.V. WQS exist, we compare concentrations to Annual-Average WQS to Maintain Existing Higher Quality ( $\leq 0.05$  mg/L, NAC 445a. 1684, 1686, 1688, 1724, 1726, and 1758) and to protect beneficial uses ( $\leq 0.10$  mg/L). However, since results are single values representing conditions during active runoff, they are not directly comparable to annual average values.

In FY2021 Total-P concentrations measured from both stormwater and baseflow samples collected from two tributaries and one urban outfall discharged to the Truckee River upstream of Idlewild ranged from 0.94 mg/L to 1.0 mg/L (**Figure 5-27**). The highest concentrations measured (1.0 mg/L) was in the stormwater sample collected at Alum Creek on November 18, 2020.



**Figure 5-27 Total-P Concentrations in Tributaries and an Urban Stormwater Outfall to the Truckee River upstream of Idlewild, FY2021**

In FY2021 Total-P concentrations measured in stormwater samples from three urban outfalls that discharge to the Truckee River between E. McCarran and Idlewild ranged from 0.24 mg/L to as high as 2.0 mg/L (**Figure 5-28**). The highest concentrations measured (1.3 to 2.0 mg/L) were from Arlington outfall during the July 2020 and November 2020 storm events.



**Figure 5-28 Total-P Concentrations in Urban Stormwater Outfalls to the Truckee River from Idlewild downstream to E. McCarran, FY2021**

FY2021 Total-P concentrations measured in stormwater and baseflow samples collected from North Truckee Drain ranged between 0.12 mg/L and 0.57 mg/L (**Figure 5-29**). The highest concentrations measured (0.48 mg/L to 0.57 mg/L) were from May 2021 and June 2021 stormwater samples at both stations.

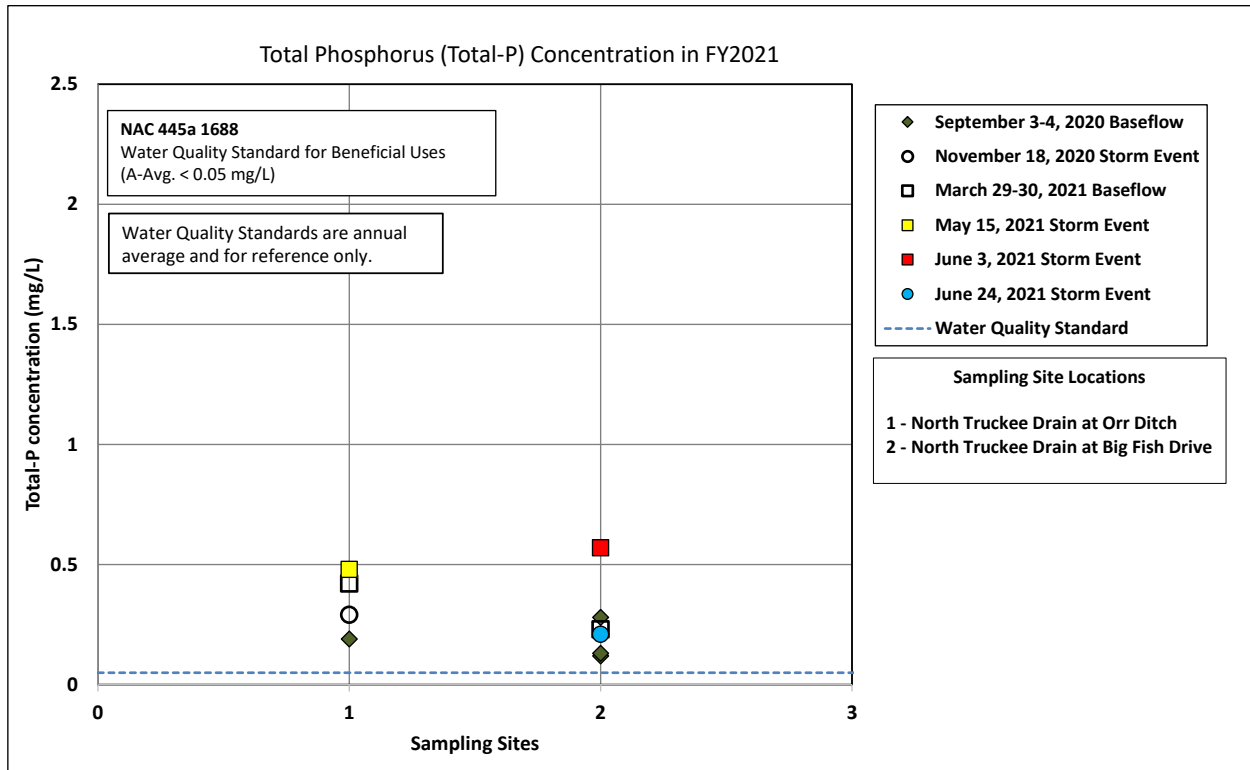
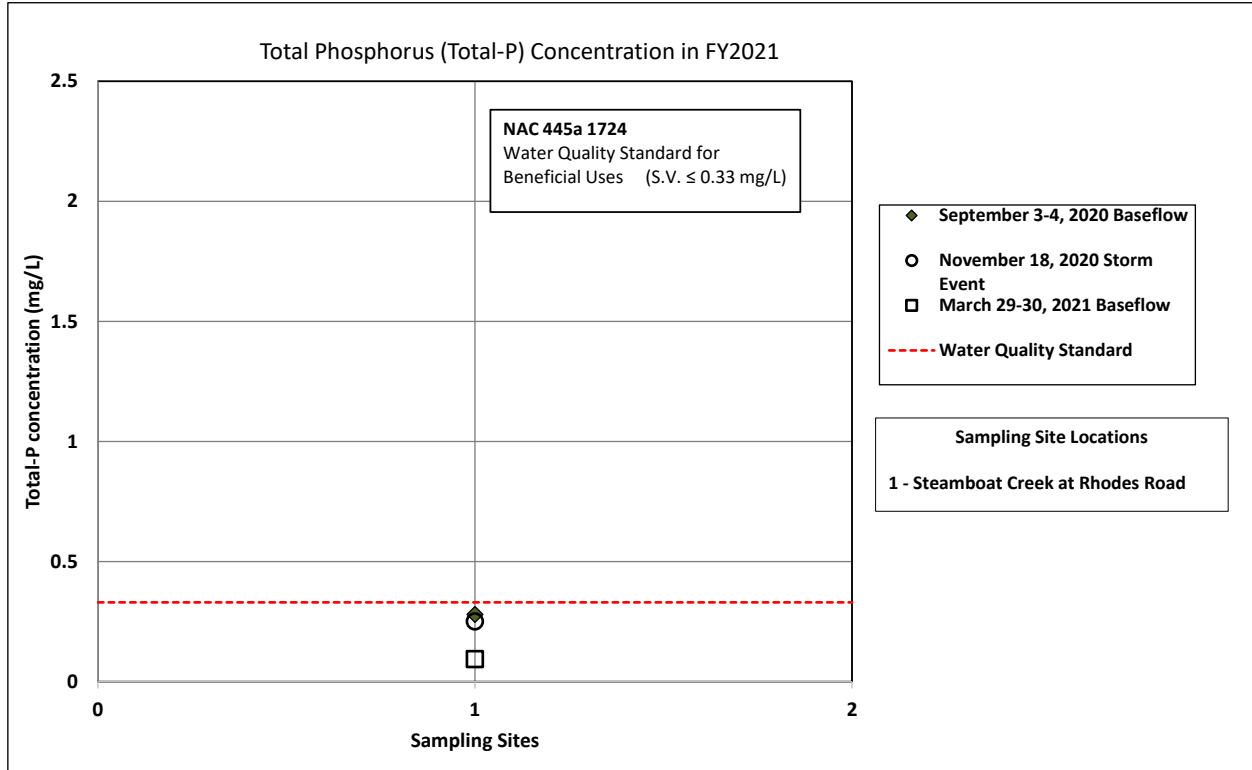


Figure 5-29 Total-P Concentrations in the North Truckee Drain, FY2021

FY2021 Total-P concentrations measured in samples collected from Steamboat Creek at Rhodes Road ranged from 0.09 mg/L to 0.25 mg/L (**Figure 5-30**). Results from all samples met the WQS established for this segment of Steamboat Creek ( $S.V. \leq 0.33$  mg/L).



**Figure 5-30** Total-P Concentrations in Steamboat Creek at Rhodes Road, FY2021



In FY2021 Total-P concentrations measured from stormwater and baseflow samples collected in Steamboat Creek and four tributaries below Rhodes Road ranged from 0.08 mg/L to 0.42 mg/L (**Figure 5-31**). The highest concentration (0.42 mg/L) was measured in stormwater from Thomas Creek. Numeric criteria to protect water quality do not exist for this segment of Steamboat Creek.

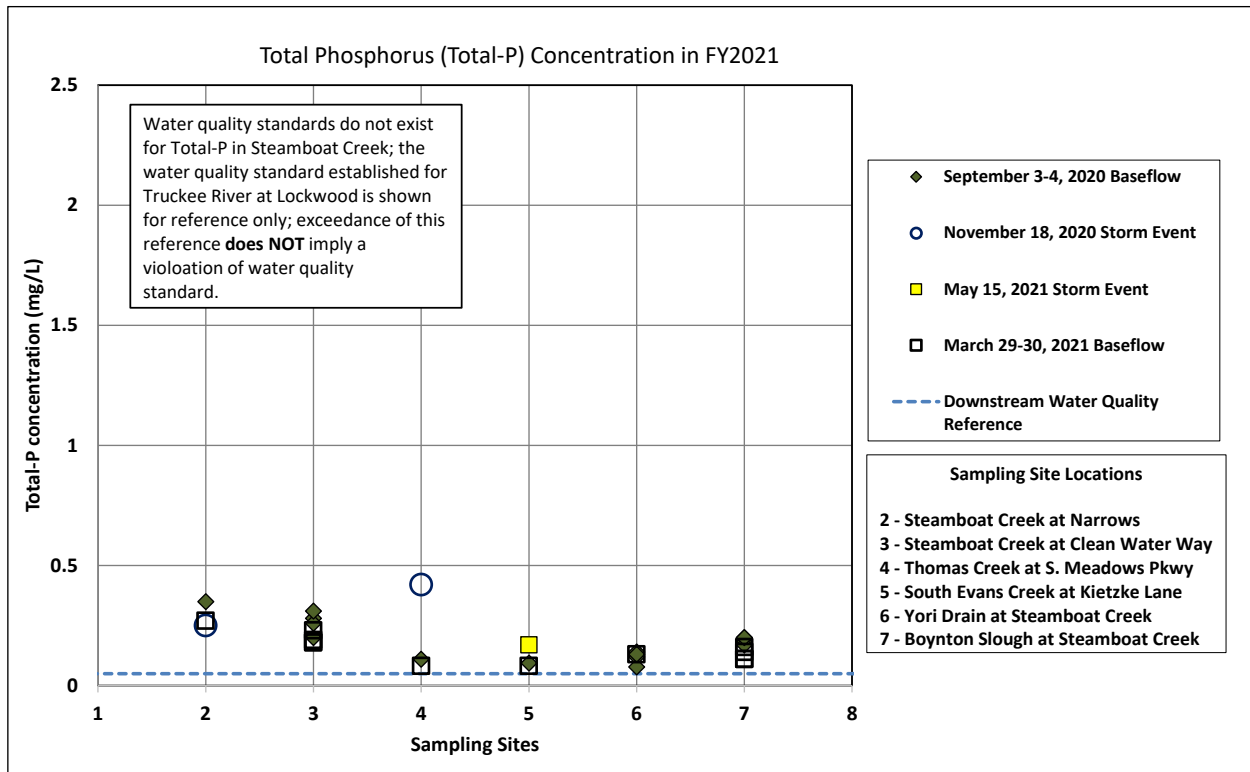


Figure 5-31 Total-P Concentrations in Steamboat Creek and Tributaries, FY2021

Total-P concentrations during FY2021 in Whites Creek were measured to be 0.14 mg/L from a single stormwater sample and 0.05 mg/L from a single summer baseflow sample (Figure 5-32). The November 18, 2020 stormwater sample exceeded the WQS established for Whites Creek (S.V.  $\leq 0.10$  mg/L, NAC 445a. 1758). Total-P was not detected in the winter baseflow sample from Whites Creek.

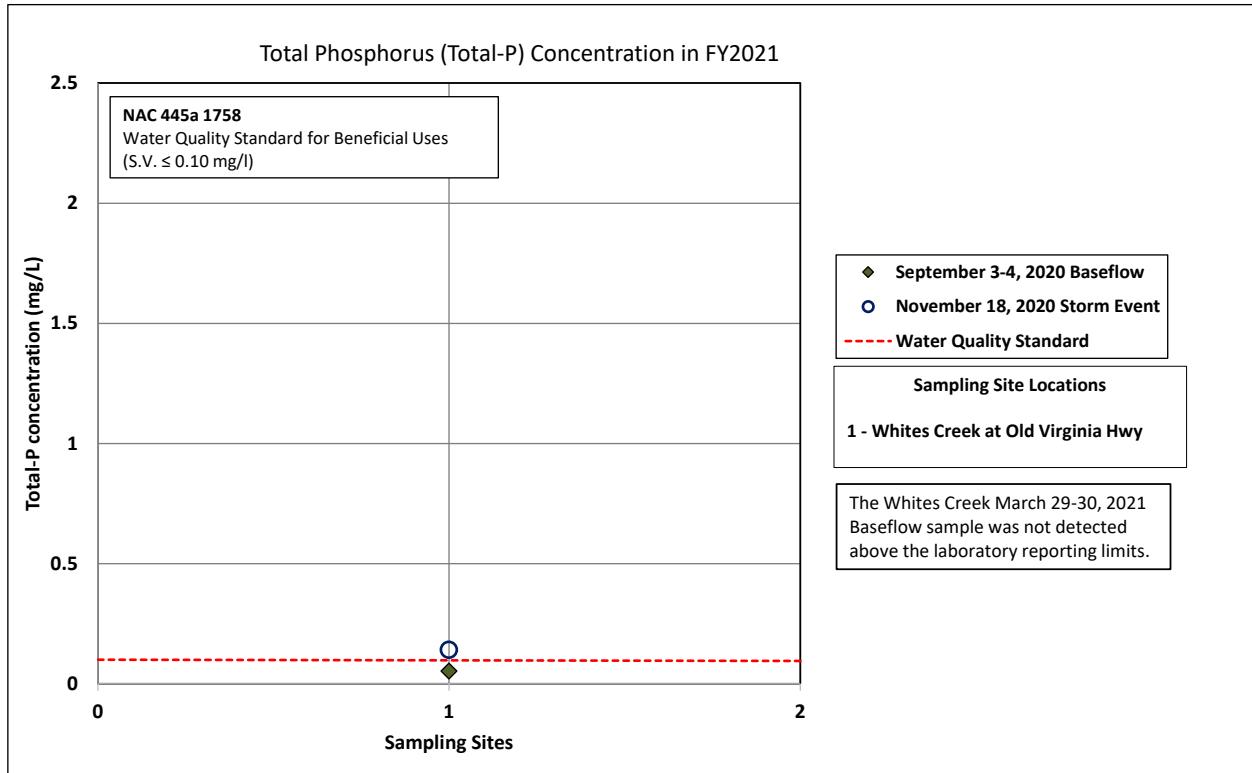
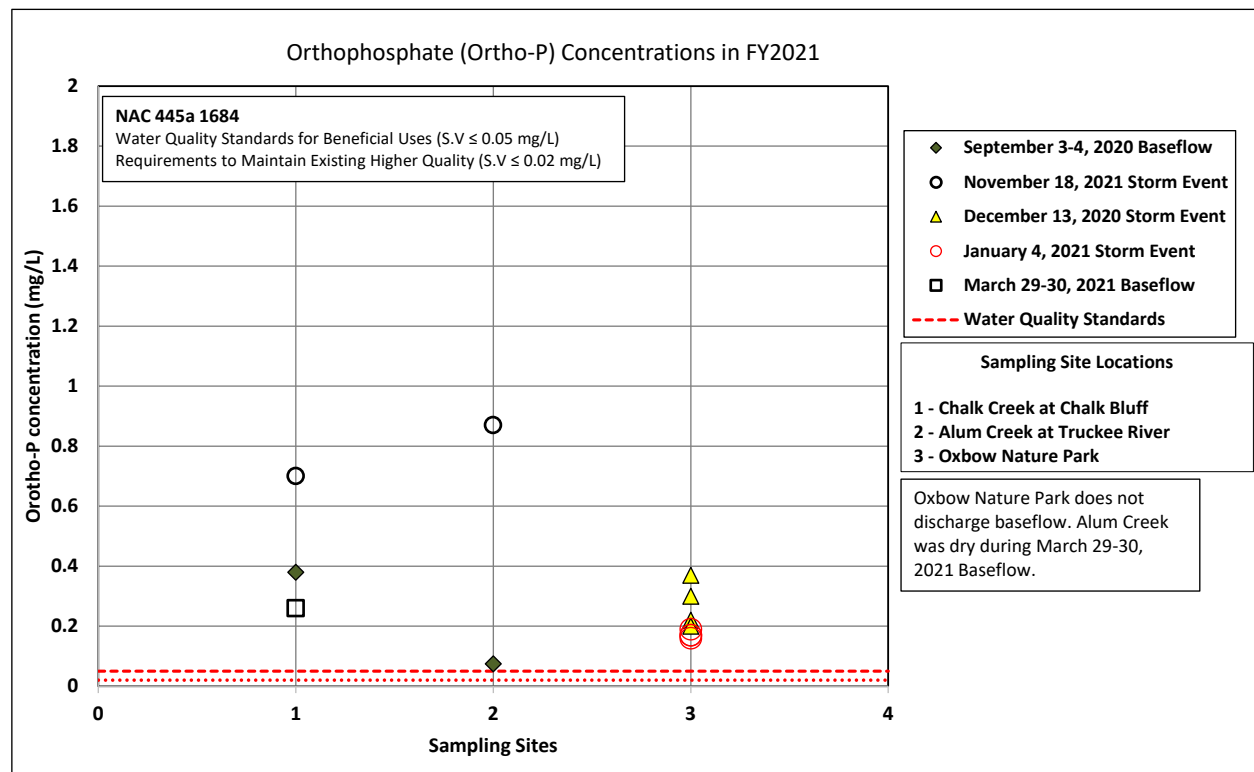


Figure 5-32 Total-P Concentrations in Whites Creek, FY2021

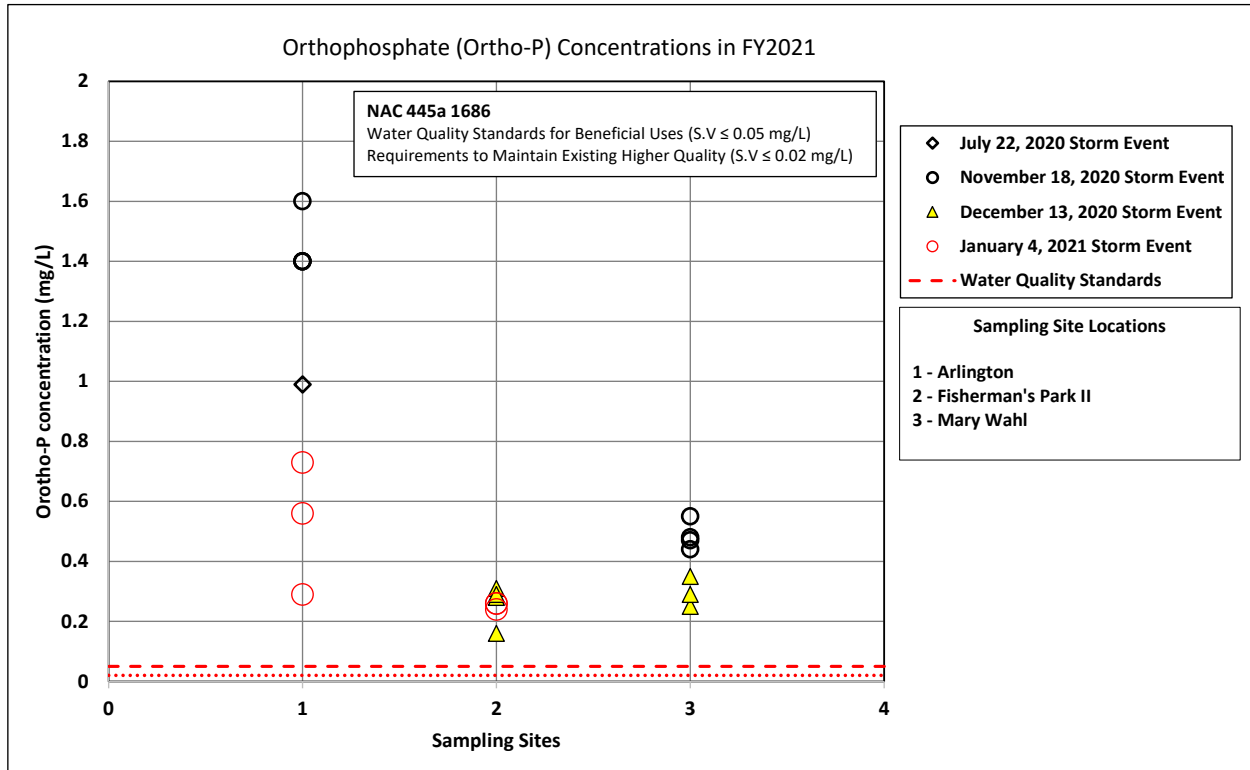
Orthophosphate (Ortho-P) concentrations for stormwater and baseflow samples collected in FY2021 are shown in **Figure 5-33, Figure 5-34, Figure 5-35, Figure 5-36, Figure 5-37, and Figure 5-38**, grouped by their listed water body and specific numeric criteria (if applicable-red dashed line).

In FY2021 Ortho-P concentrations measured in samples from two tributaries and an urban outfall which discharge to the Truckee River upstream of Idlewild ranged from 0.07 mg/L to 0.87mg/L (**Figure 5-33**). The highest concentrations measured were from Chalk Creek (0.70 mg/L) and Alum Creek (0.87 mg/L) samples during the November 18, 2020 storm event. All samples exceeded the established WQS ( $\leq 0.05$  mg/L, NAC 445a. 1684) and requirements to maintain existing higher quality ( $\leq 0.02$  mg/L, NAC 445a. 1684). Dry conditions in Alum Creek prevented winter baseflow sampling.



**Figure 5-33 Ortho-P Concentrations in Tributaries and an Urban Stormwater Outfall to the Truckee River upstream of Idlewild, FY2021**

FY2021 Ortho-P concentrations measured from stormwater samples collected from three urban stormwater outfalls discharged to the Truckee River between E. McCarran and Idlewild ranged from 0.16 mg/L to 1.6 mg/L (**Figure 5-34**). All samples exceeded established WQS ( $\leq 0.05$  mg/L) and requirements to maintain existing higher quality ( $\leq 0.02$  mg/L). The highest concentrations (1.4 to 1.6 mg/L) were measured from the Arlington urban outfall during the November 2020 storm event.



**Figure 5-34** Ortho-P Concentrations in Urban Stormwater Outfalls to the Truckee River from Idlewild downstream to E. McCarran, FY2021

In FY2021 Ortho-P concentrations measured in stormwater and baseflow samples collected from the North Truckee Drain ranged between 0.12 mg/L and 0.33 mg/L (**Figure 5-35**). There are no established WQS for Ortho-P in the North Truckee Drain or the Truckee River at Lockwood.

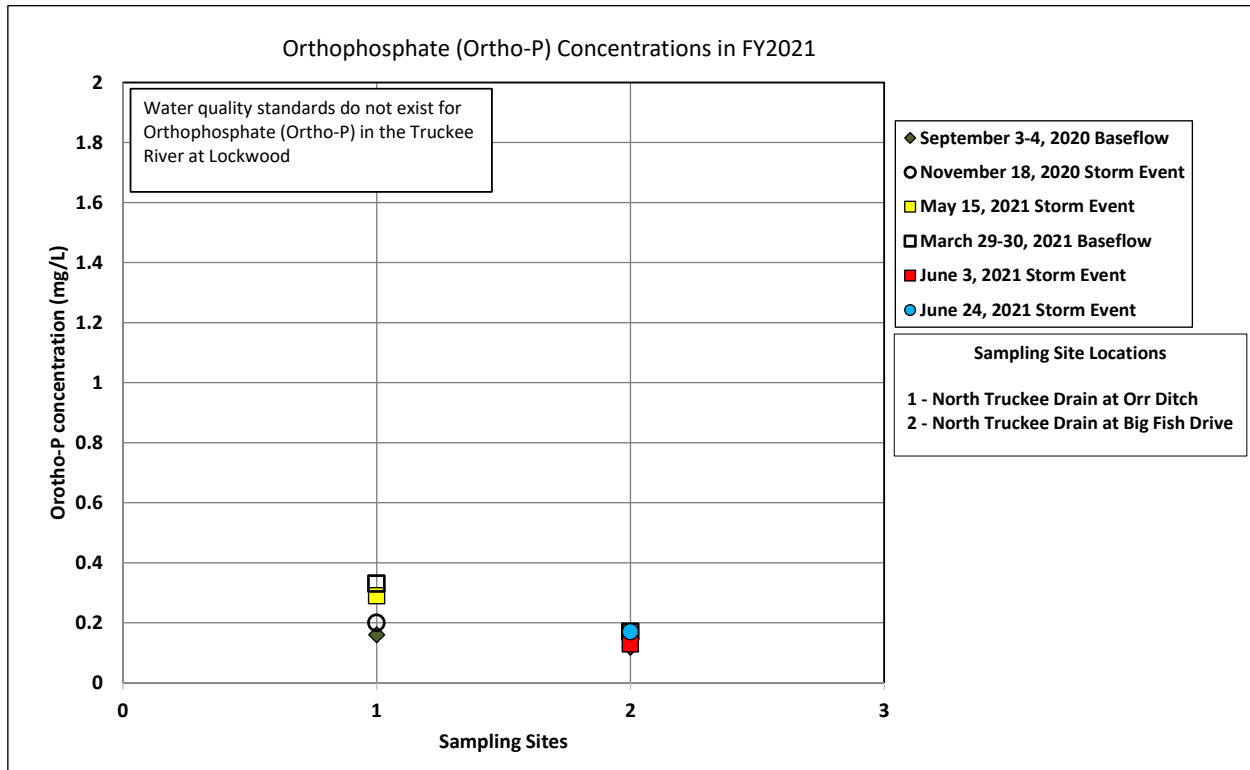
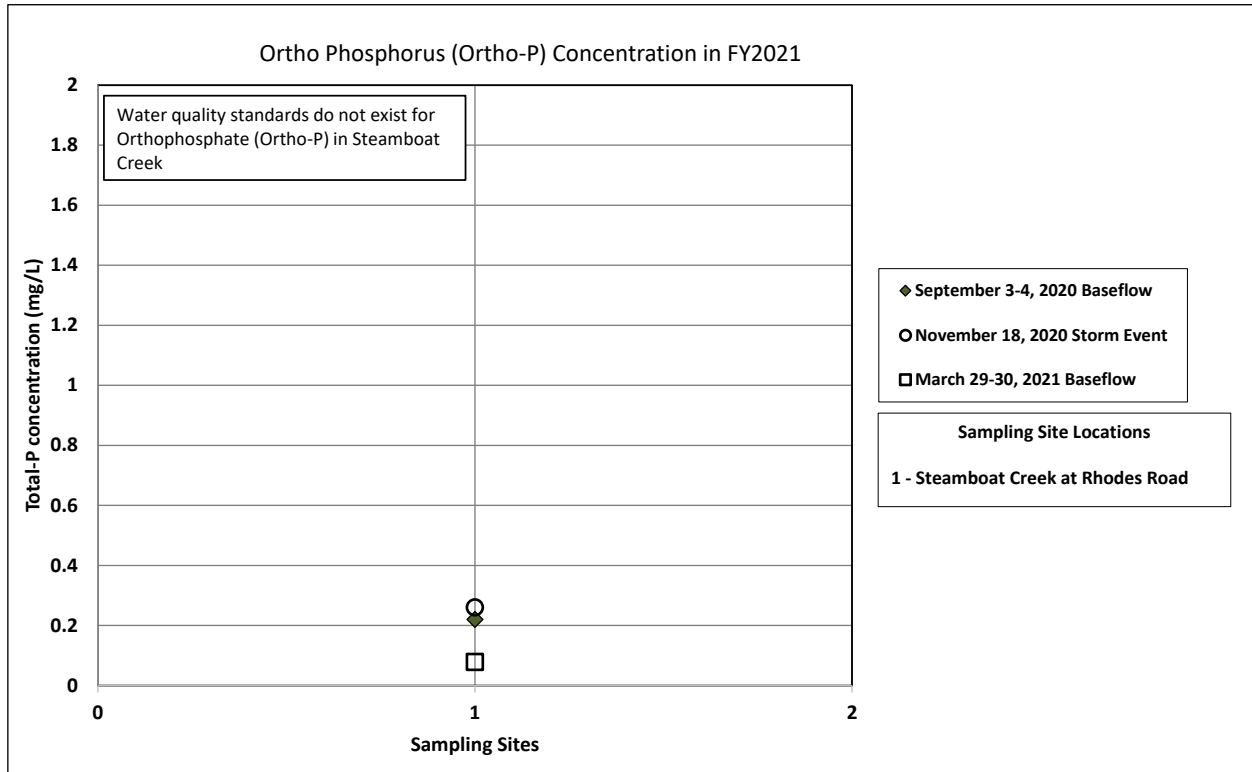


Figure 5-35 Ortho-P Concentrations in the North Truckee Drain, FY2021

FY2021 Ortho-P concentrations measured in stormwater and baseflow samples collected from Steamboat Creek at Rhodes Road ranged from 0.08 mg/L to 0.26 mg/L (**Figure 5-36**). There are no established WQS for Ortho-P in Steamboat Creek.



**Figure 5-36** Ortho-P Concentrations in Steamboat Creek at Rhodes Road, FY2021

In FY2021 Ortho-P concentrations measured in stormwater and baseflow samples collected from Steamboat Creek and four tributaries below Rhodes Road ranged from 0.05 mg/L to 0.41 mg/L (**Figure 5-37**). The highest concentration measured (0.34 mg/L) was from summer baseflow in Steamboat Creek at Narrows.

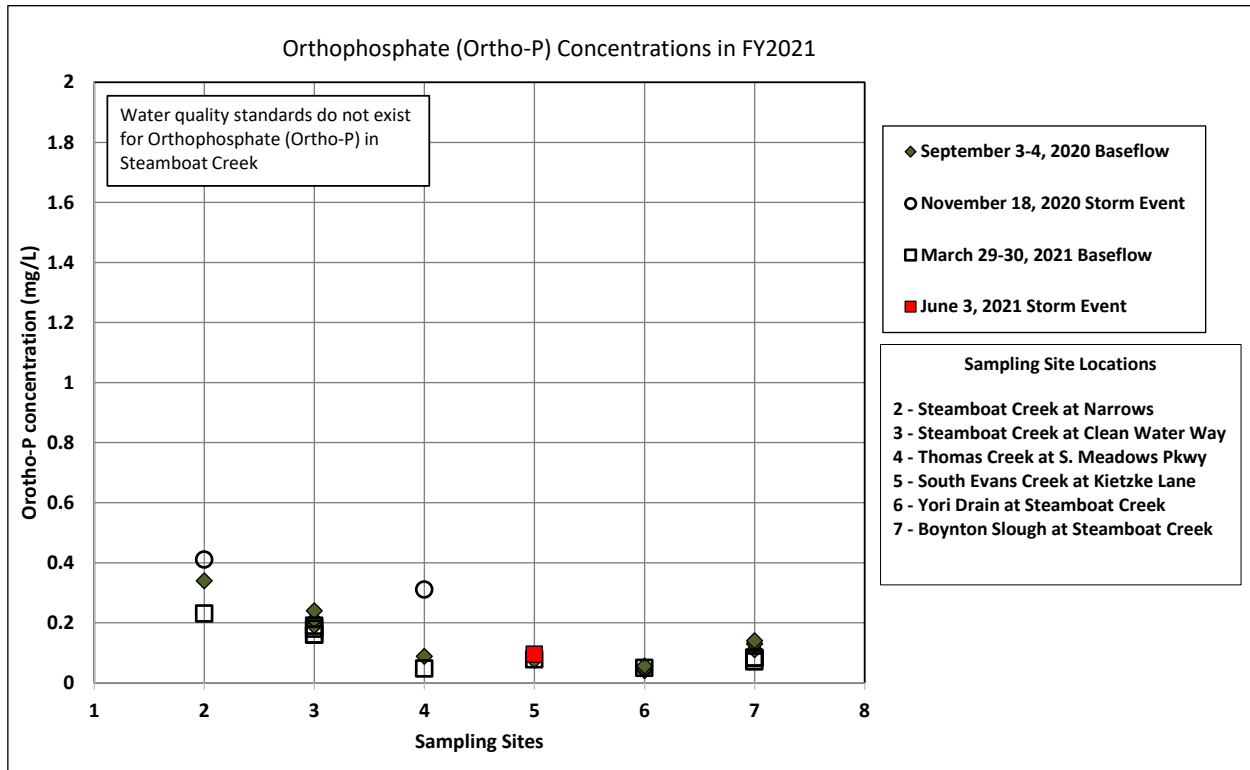
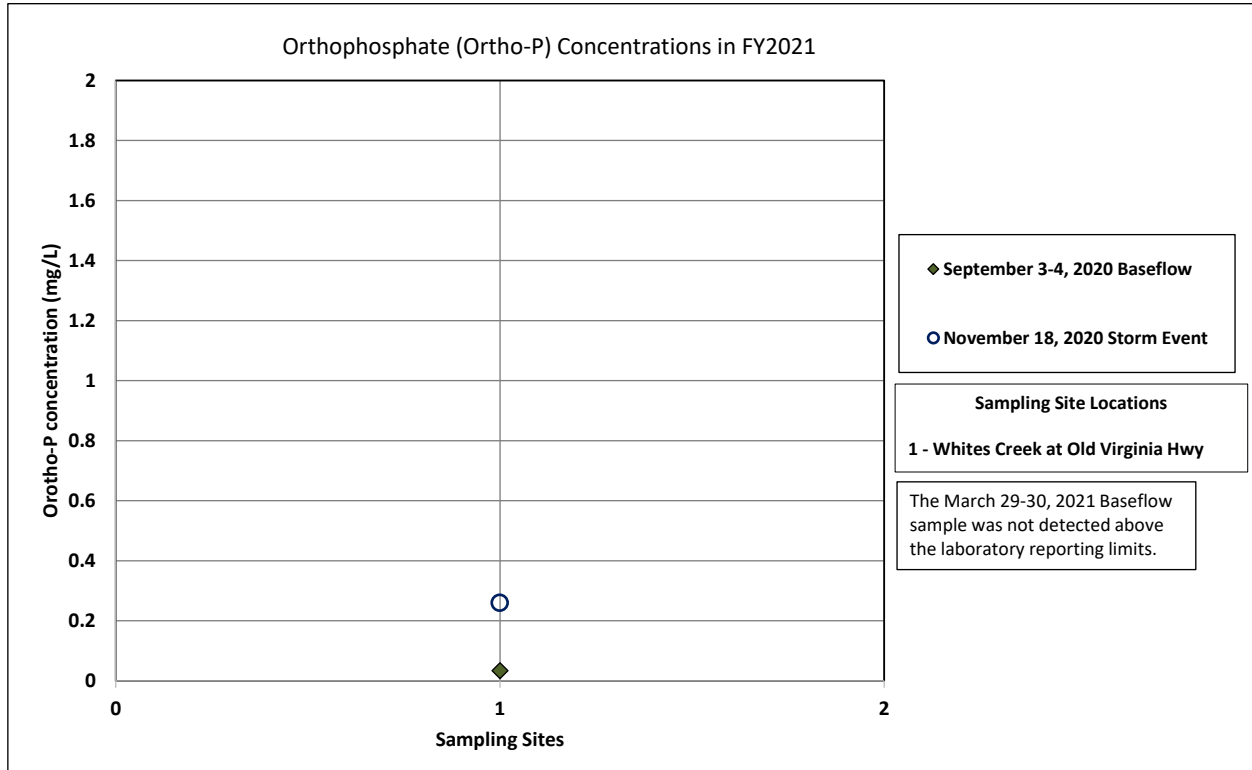


Figure 5-37 Ortho-P Concentrations in Steamboat Creek and Tributaries, FY2021

Ortho-P concentrations were measured to be 0.26 mg/L in a stormwater sample and 0.03 mg/L in a baseflow sample taken during FY2021 (**Figure 5-38**). Ortho-P concentration from the winter baseflow sample was below laboratory detection limits. There are not established WQS for Ortho-P in Whites Creek.



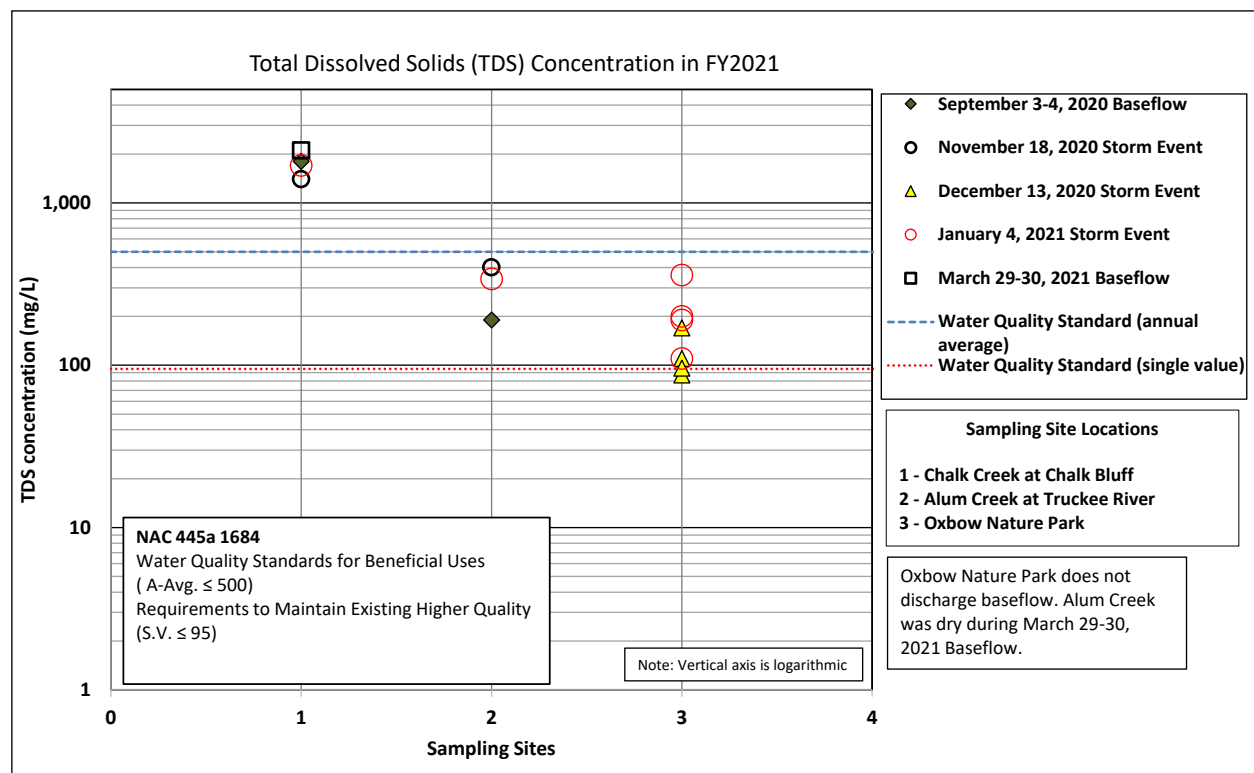
**Figure 5-38 Ortho-P Concentrations in Whites Creek, FY2021**



### 5.4.3 TOTAL DISSOLVED SOLIDS

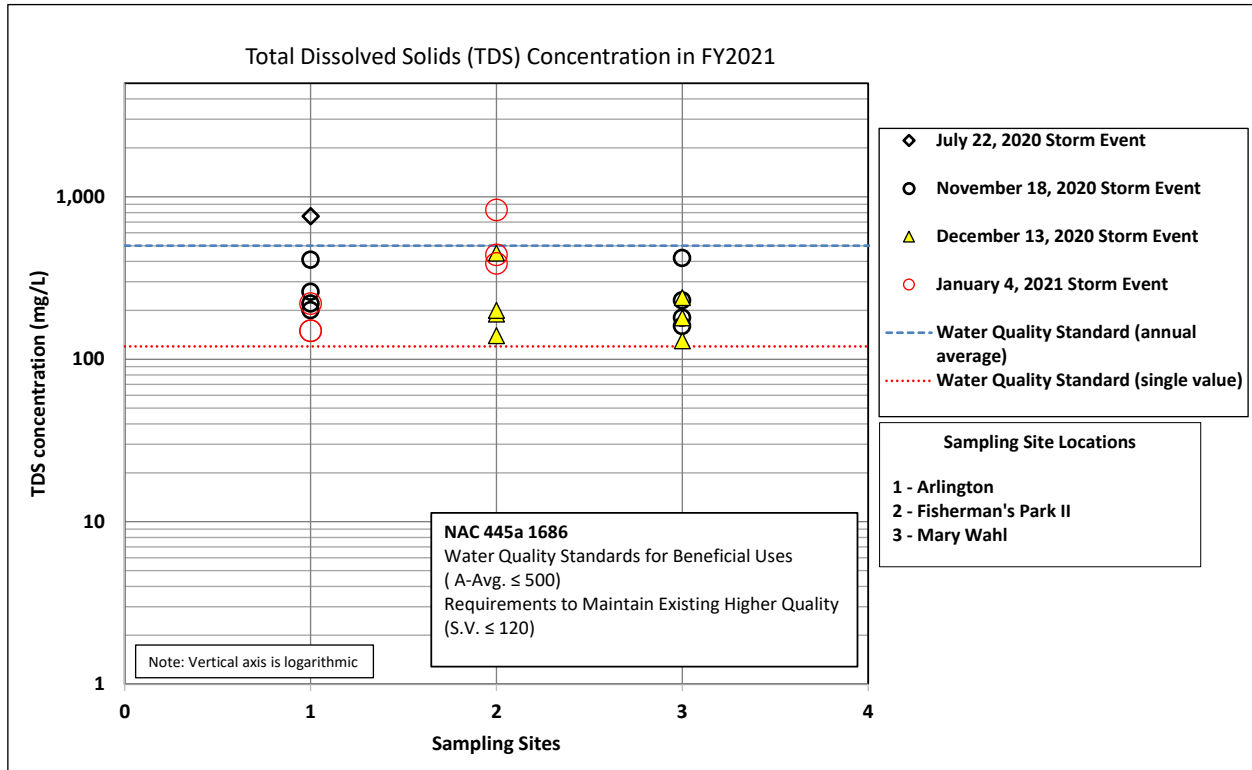
TDS concentrations for stormwater and baseflow samples collected in FY2021 are shown in **Figure 5-39**, **Figure 5-40**, **Figure 5-41**, **Figure 5-42**, **Figure 5-43**, and **Figure 5-44**, grouped by their listed water body-specific numeric criteria. Vertical axes in all graphs are logarithmic to show the wide range of values detected.

In FY2021 TDS concentrations measured in samples from two tributaries and one urban outfall discharged to the Truckee River upstream of Idlewild ranged from 87 mg/L to 2,100 mg/L (**Figure 5-39**), with Chalk Creek exhibiting much higher TDS concentrations than other tributaries. We compare these concentrations to the single value Requirement to Maintain Existing Higher Quality ( $\leq 95$  mg/L) in the Truckee River. Annual average WQS for Beneficial Uses ( $\leq 500$  mg/L) for this segment of Truckee River is shown for reference only. All samples collected from Alum Creek and Chalk Creek exceeded the S.V. water quality requirement, and 6 out of 8 stormwater samples collected from Oxbow Nature Park urban stormwater outfall also exceeded this requirement.



**Figure 5-39 TDS Concentrations in Tributaries and an Urban Stormwater Outfall to the Truckee River upstream of Idlewild, FY2021**

TDS concentrations measured in FY2021 from stormwater samples in three urban stormwater outfalls that discharge to the Truckee River between E. McCarran and Idlewild ranged from 130 mg/L to 830 mg/L (**Figure 5-40**). All stormwater samples exceeded the Single Value Requirements used to Maintain Existing Higher Quality (S.V. ≤ 120 mg/L). The annual average WQS for Beneficial Uses (A-Avg. ≤ 500 mg/L) for this segment of Truckee River is shown for reference only.



**Figure 5-40 TDS Concentrations in Urban Stormwater Outfalls to the Truckee River from Idlewild downstream to E. McCarran, FY2021**

In FY2021 TDS concentrations measured in stormwater and baseflow samples collected from the North Truckee Drain, a tributary to the Truckee River upstream of Lockwood, ranged from 210 mg/L to 1,100 mg/L (**Figure 5-41**). All but one sample from the June 24, 2021 thunderstorm event measured in North Truckee Drain exceeded the Single Value Requirement used to Maintain Existing Higher Quality (S.V.  $\leq 260$  mg/L) for this segment of Truckee River. The annual-average WQS is shown for reference only.

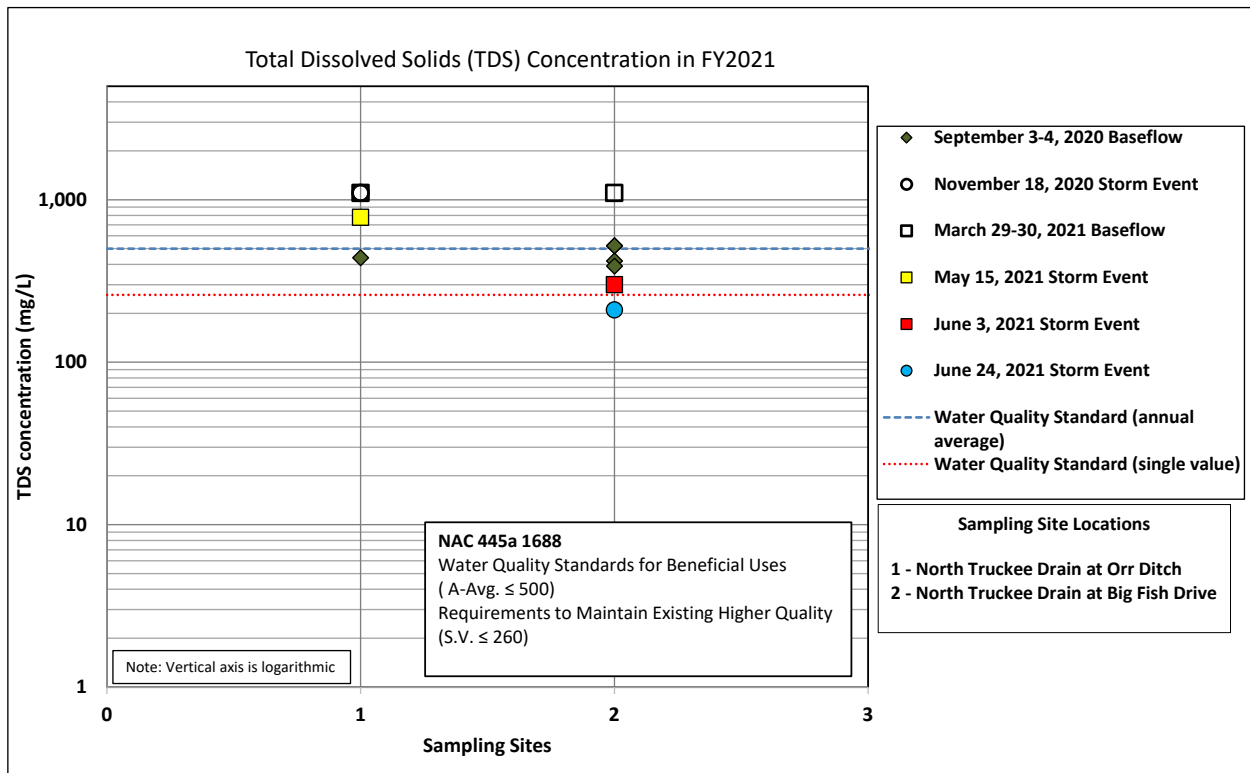


Figure 5-41 TDS Concentrations in the North Truckee Drain, FY2021

FY2021 TDS concentrations in Steamboat Creek at Rhodes Road ranged from 160 mg/L to 270 mg/L (Figure 5-42). These values met the WQS for TDS established for this segment of Steamboat Creek ( $\leq 500$  mg/L).

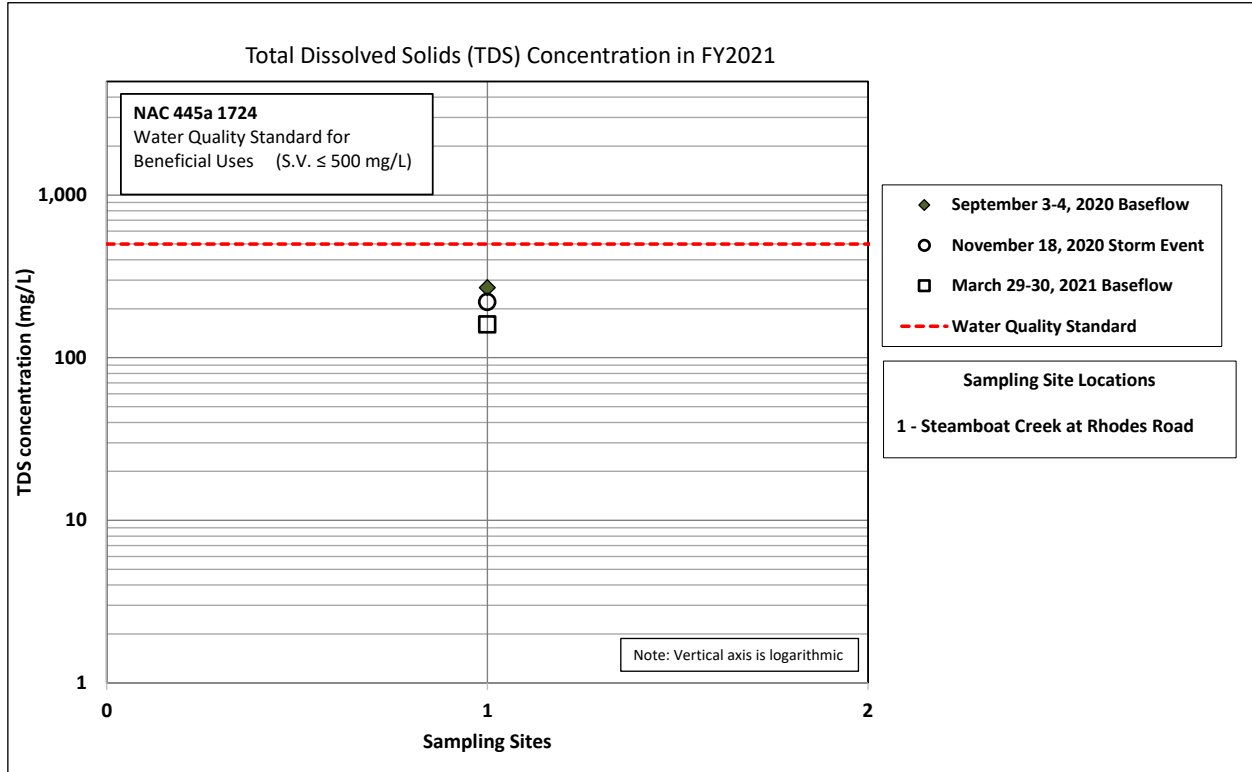


Figure 5-42 TDS Concentrations in Steamboat Creek at Rhodes Road, FY2021

In FY2021 TDS concentrations measured in stormwater and baseflow samples collected at two stations in Steamboat Creek and four tributaries downstream of Rhodes Road ranged from 42 mg/L to 690 mg/L (**Figure 5-43**). Single value WQS to protect water quality in Steamboat Creek and four tributaries do not exist for TDS, we show a maximum annual-average water quality standard for the Truckee River (<215 mg/L) for reference only. Highest concentrations were measured in both winter and summer baseflow from Steamboat Creek at Narrows. TDS were not detected in summer baseflow samples collected from Thomas Creek.

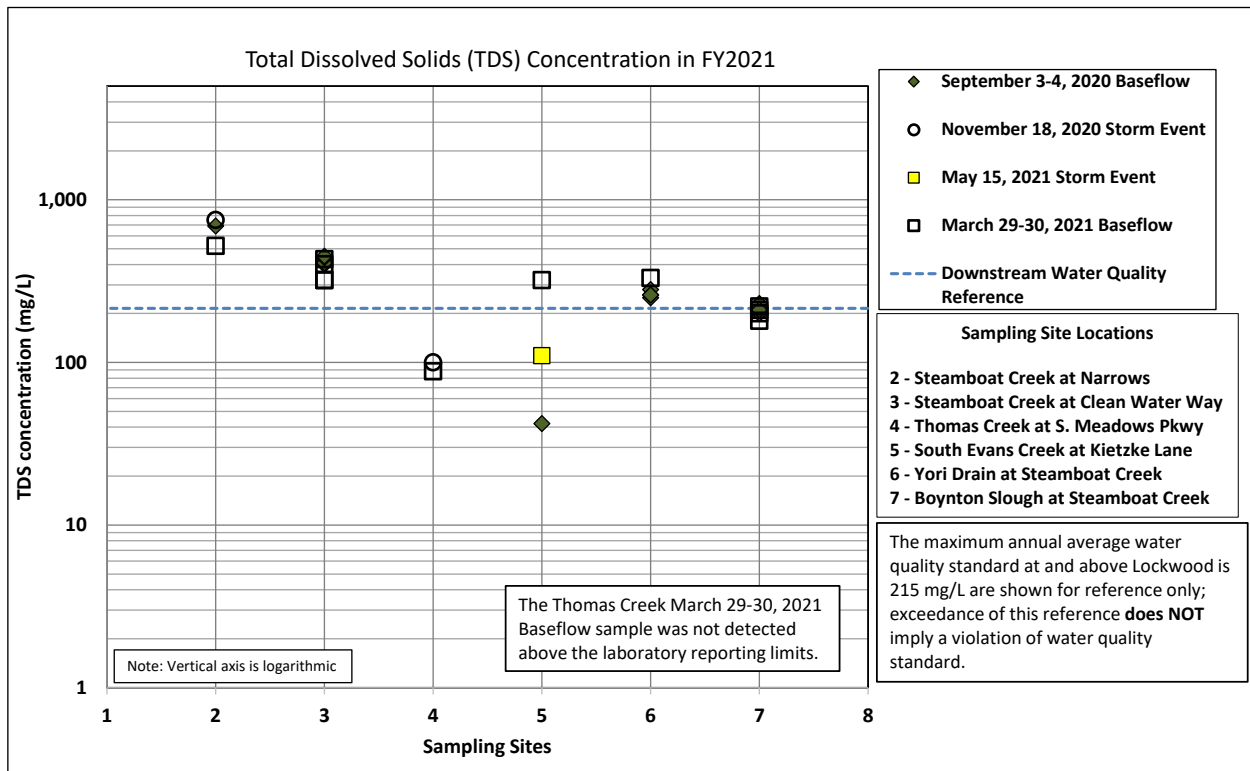


Figure 5-43 TDS Concentrations in Steamboat Creek and Tributaries, FY2021

TDS concentrations measured in stormwater and baseflow samples collected from Whites Creek during FY2021 ranged from 57 mg/L to 100 mg/L (Figure 5-44). A single value WQS does not exist for Whites Creek; however, an annual-average criterion of  $\leq 500$  mg/L to protect beneficial uses is shown for reference only.

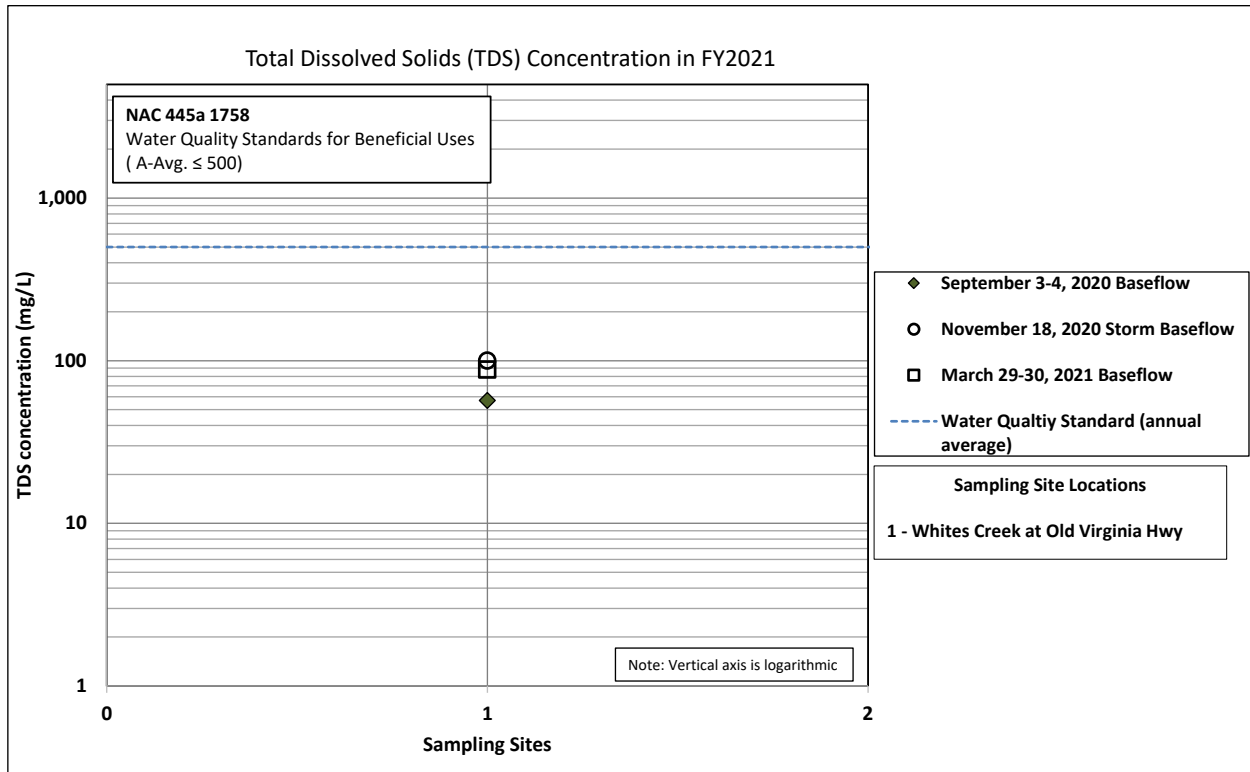
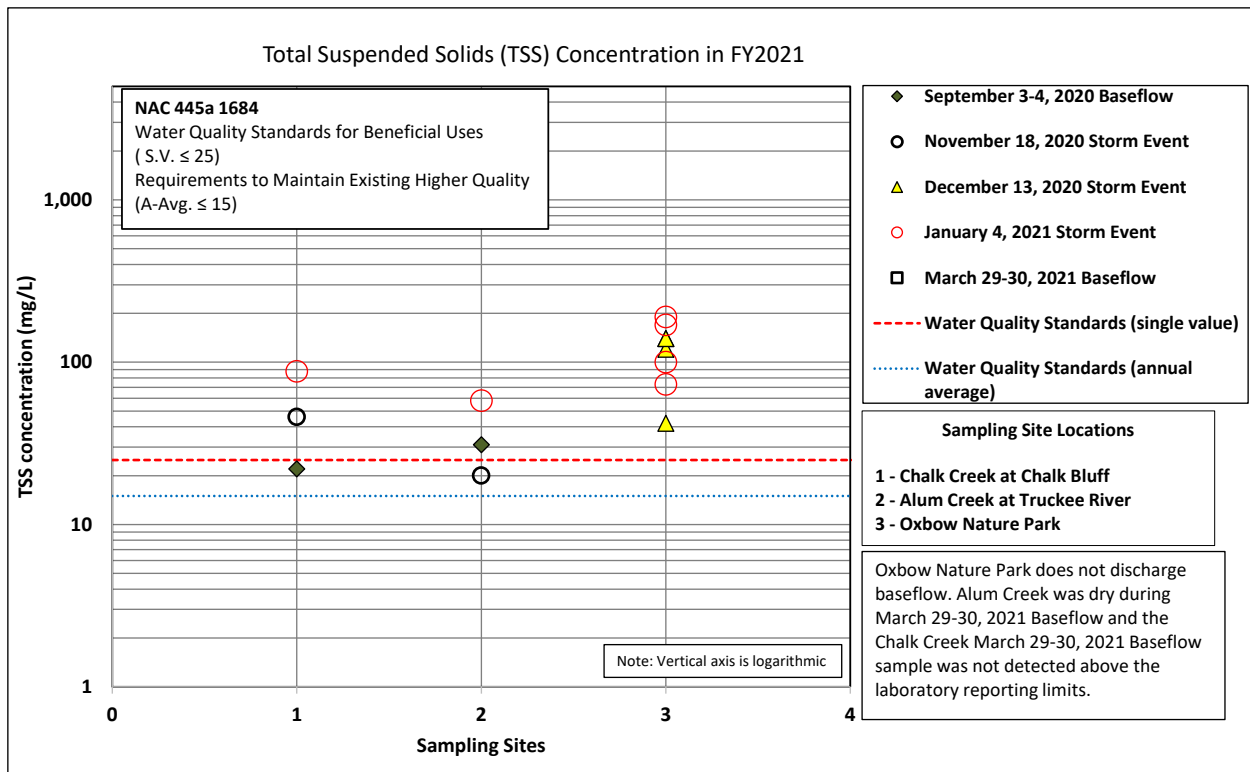


Figure 5-44 TDS Concentrations in Whites Creek, FY2021

5.4.4 TOTAL DISSOLVED SOLIDS

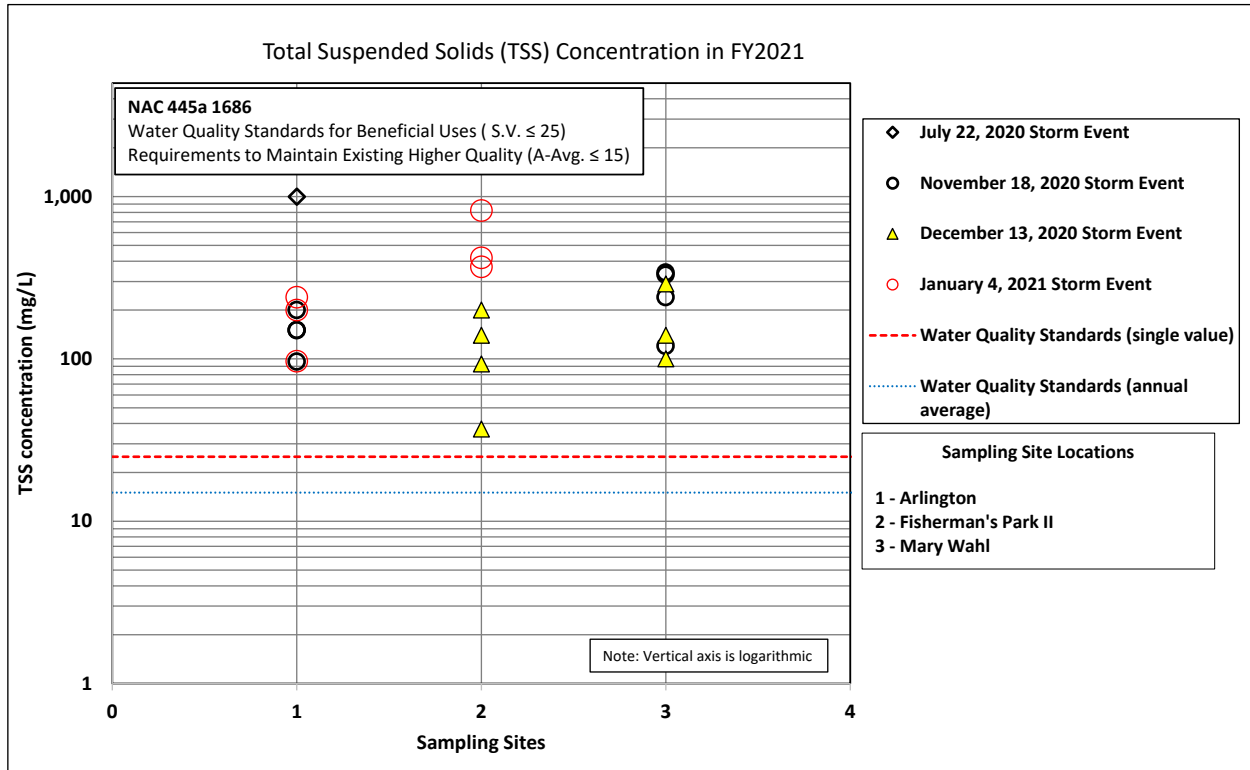
TSS concentrations for stormwater and baseflow samples collected in FY2021 are shown in **Figure 5-45**, **Figure 5-46**, **Figure 5-47**, **Figure 5-48**, and **Figure 5-49**, grouped by their listed water body and specific WQS or numeric criteria. Vertical axes in all graphs are logarithmic to show the range in values detected.

In FY2021 TSS concentrations from two tributaries and one urban stormwater outfall discharged to the Truckee River upstream of Idlewild ranged from not detected to 190 mg/L (**Figure 5-45**). We compare these concentrations to. All stormwater samples collected at Oxbow Nature Park urban outfall exceeded the single value WQS established to protect beneficial uses ( $\leq 25$  mg/L) for this segment of the Truckee River. Both stormwater samples collected at Alum Creek, and one collected at Chalk Creek exceeded the WQS. The summer baseflow sample at Alum Creek and stormwater sample at Chalk Creek from November 18, 2020, met the WQS. The annual average numeric criterion ( $\leq 15$  mg/L) to maintain higher quality is shown for reference only. Dry conditions in Alum Creek prevented winter baseflow sampling.



**Figure 5-45 TSS Concentrations in Tributaries and an Urban Stormwater Outfall to the Truckee River upstream of Idlewild, FY2021**

TSS concentrations measured in stormwater from three urban outfalls that discharge to the Truckee River between E. McCarran and Idlewild ranged from 37 mg/L to 1000 mg/L during FY2021 (**Figure 5-46**). All stormwater samples collected from these three stormwater urban outfalls exceeded single value WQS established to protect beneficial uses ( $\leq 25$  mg/L) and for this segment of the Truckee River. The annual average numeric criterion ( $\leq 15$  mg/L) to maintain higher quality is shown for reference only. WQS.



**Figure 5-46 TSS Concentrations in Urban Stormwater Outfalls to the Truckee River from Idlewild downstream to E. McCarran, FY2021**



TSS concentrations measured from stormwater and baseflow samples collected from two stations along the North Truckee Drain ranged from not detected to 470 mg/L (Figure 5-47). All stormwater and baseflow samples collected from North Truckee Drain at Big Fish Drive exceeded the single value WQS established to protect beneficial uses ( $\leq 50$  mg/L) for this segment of the Truckee River, except for the winter baseflow grab sample that was not detected. A stormwater sample collected from North Truckee Drain at Orr Ditch November 18, 2020 was not detected and a storm sample collected on May 15, 2021 exceeded the WQS; however, both summer and winter baseflow samples at North Truckee Drain at Orr Ditch met the WQS.

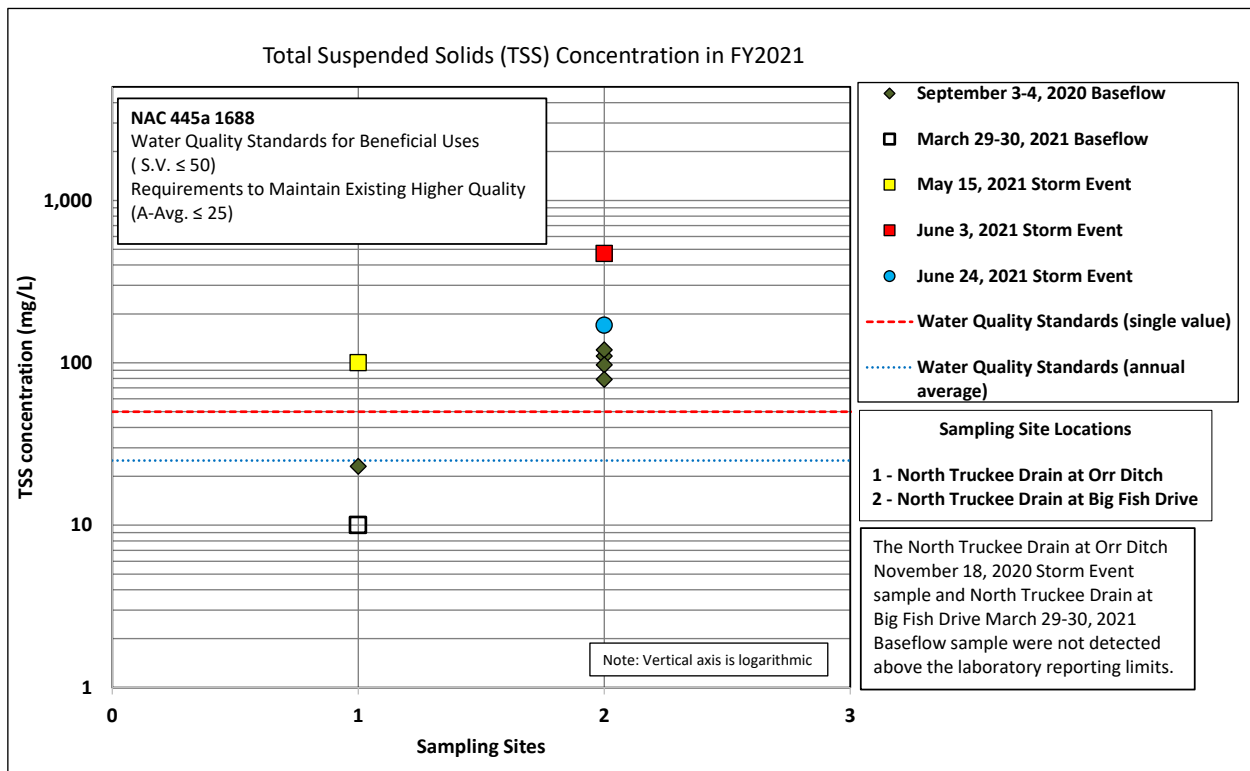
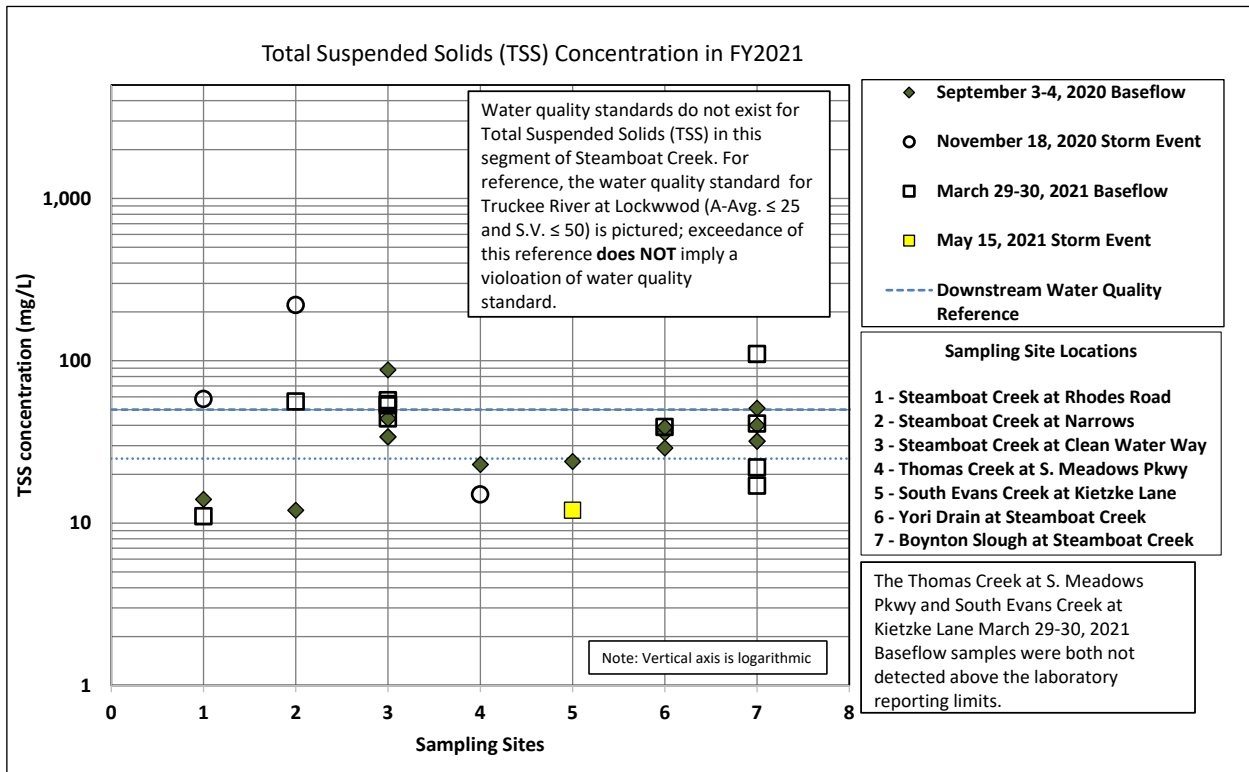


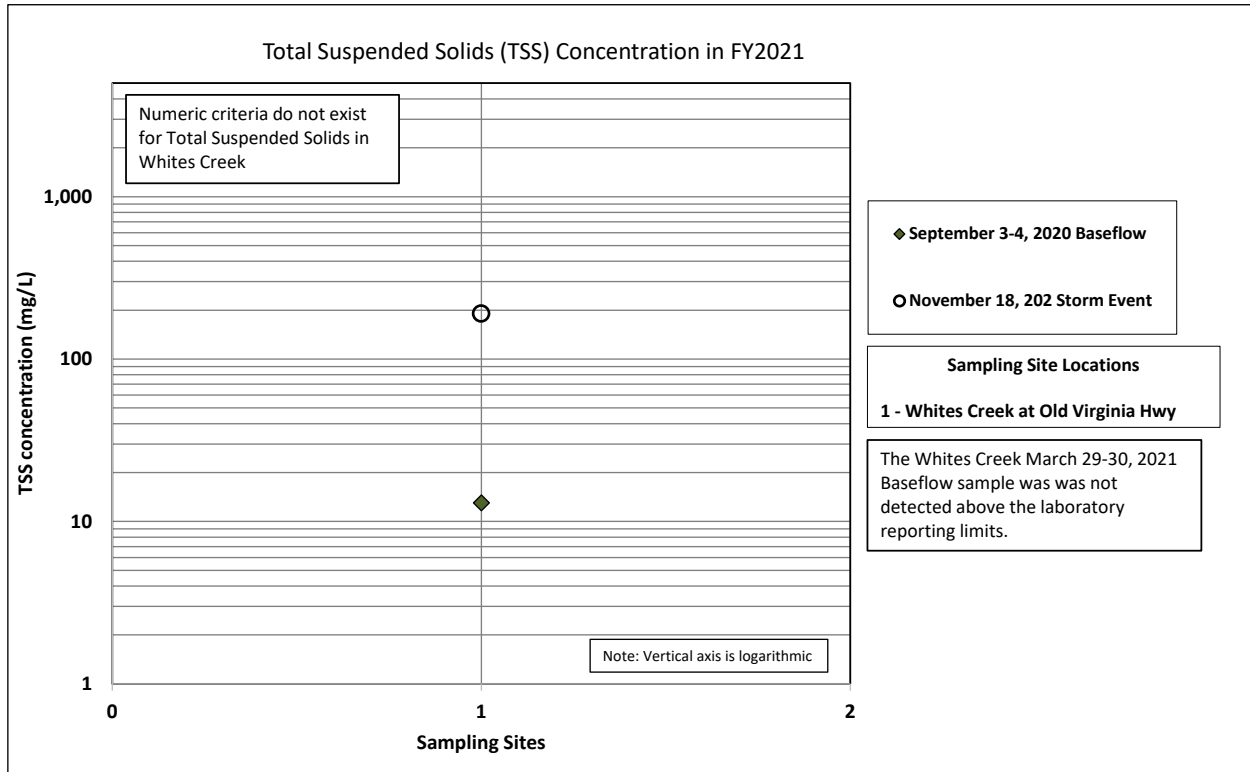
Figure 5-47 TSS Concentrations in the North Truckee Drain, FY2021

In FY2021 TSS concentrations measured in stormwater and baseflow samples collected at two different stations in Steamboat Creek and three tributaries downstream from Rhodes Road ranged from 11 mg/L to 220 mg/L (**Figure 5-48**). There are no numerical standards established for TSS in Steamboat Creek or its tributaries; a WQS established for Truckee River at Lockwood is shown for reference only. Boynton Slough exhibited the highest TSS concentrations (110 mg/L) measured in winter baseflow, and Steamboat Creek at Clean Water Way (88 mg/L) measured in summer baseflow. Steamboat Creek at the Narrows had the highest single TSS concentration measured during the year, TSS was not detected in winter baseflow samples at South Evans Creek and Thomas Creek.



**Figure 5-48 TSS Concentrations in Steamboat Creek and Tributaries, FY2021**

TSS concentrations were 13 mg/L from summer baseflow and 190 mg/L from stormwater in Whites Creek (**Figure 5-49**). TSS was not detected in the winter baseflow sample. Established WQS do not exist for Whites Creek.

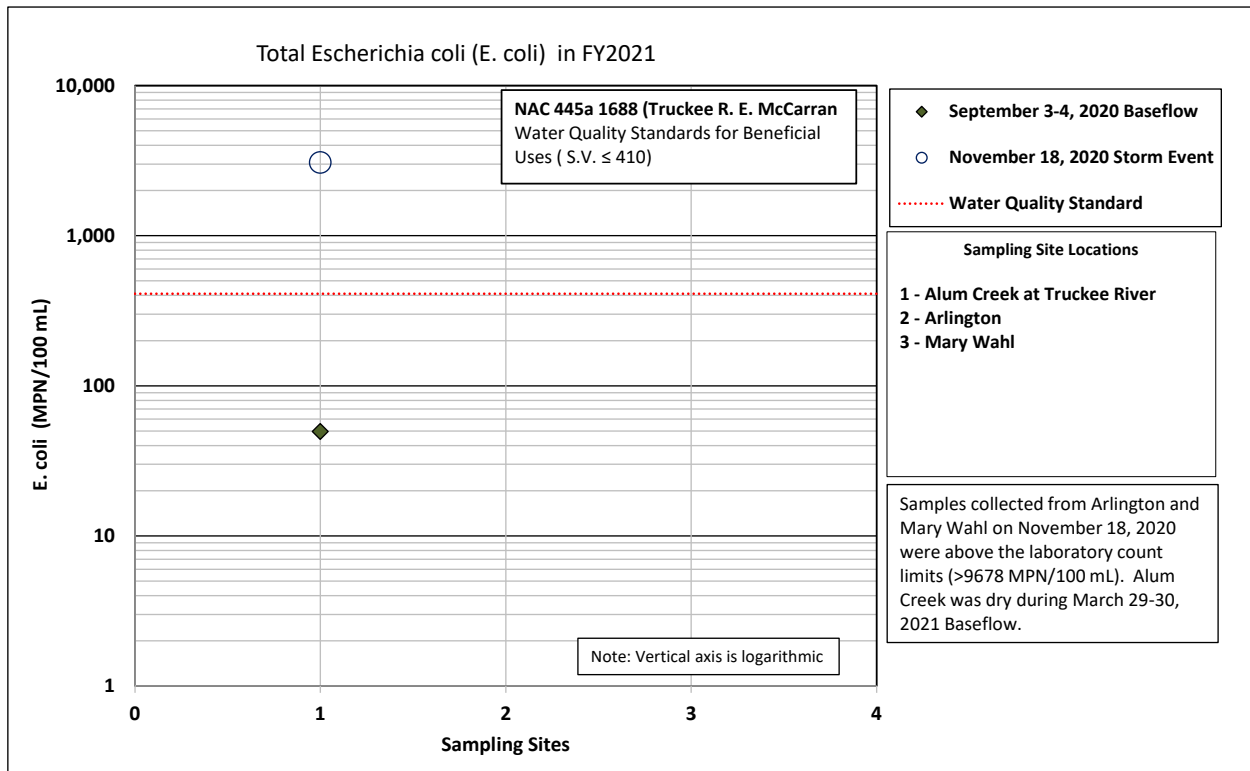


**Figure 5-49 TSS Concentrations in Whites Creek, FY2021**

### 5.4.5 ESCHERICHIA COLI BACTERIA

In FY2021, four storm samples were successfully sampled and transferred to the laboratory within the holding time. *E.coli* samples were also collected and analyzed during winter and summer baseflow at stations identified for *E.coli* sampling in the 2021 SAP (**Figure 5-50, Figure 5-49, and Figure 5-52**).

*E.coli* counts for the November 18, 2020 stormwater sample collected at Alum Creek measured 3,080 MPN/100 mL and exceeded the established WQS for beneficial uses (<410 MPN/100 mL). The Alum Creek summer baseflow sample measured 137 MPN/100 mL. *E.coli* samples collected from stormwater at the Arlington and Mary Wahl urban outfalls were above the laboratory count limit (>2,419 MPN/100 mL) and therefore exceed the established WQS for beneficial uses(**Figure 5-50**).



**Figure 5-50** *E.coli* Counts for Samples Collected in Alum Creek and Urban Stormwater Outfalls, FY2021

In FY2021 *E. coli* samples collected at Whites Creek during the November 18, 2020 storm event were above the laboratory count limit (9678 MPN/100mL) and therefore exceed the established WQS for Whites Creek. Baseflow samples were measured to be 30 MPN/100 mL in winter and 90 MPN/100 mL in summer (Figure 5-51).

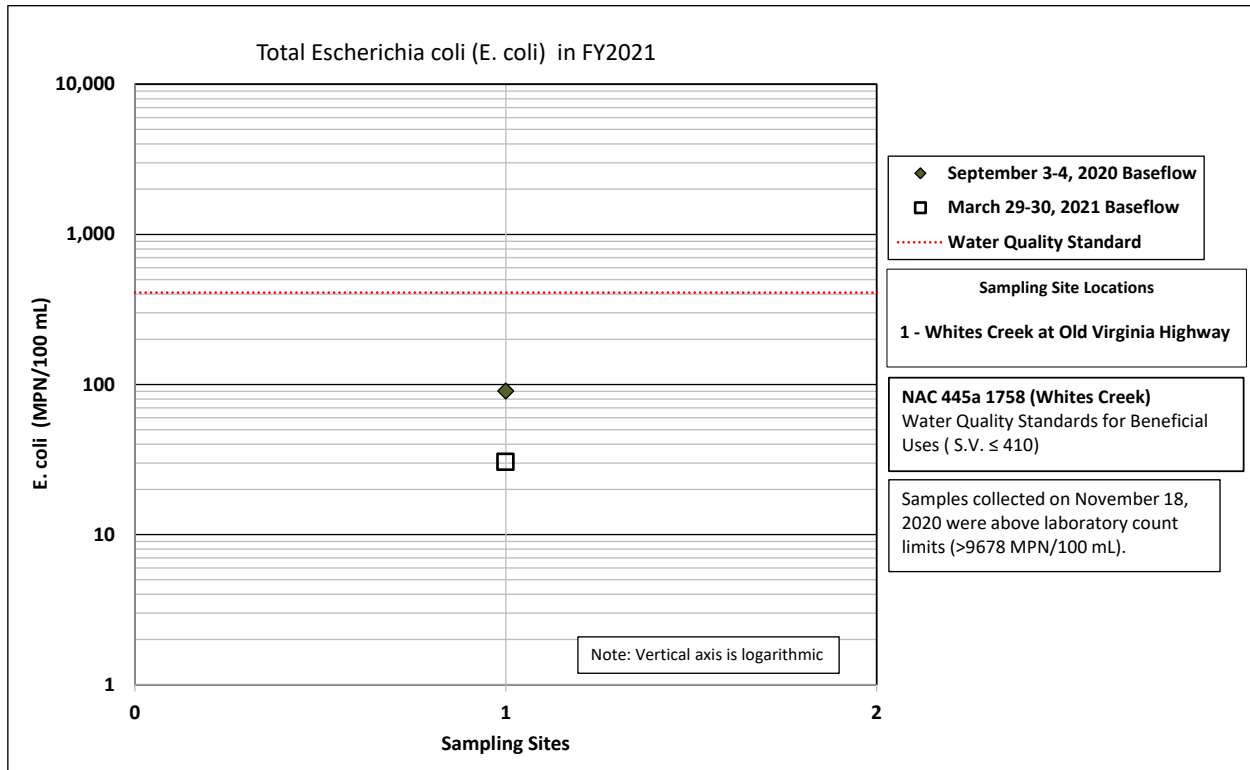
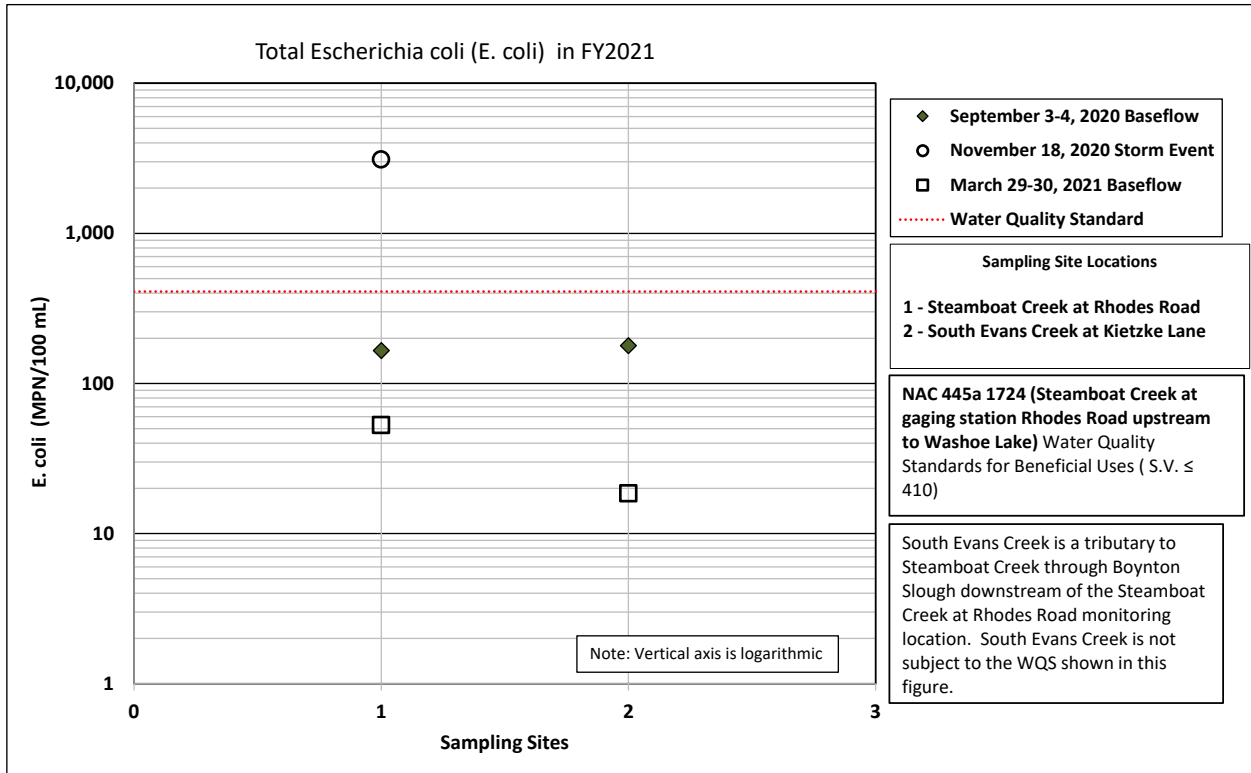


Figure 5-51 *E.coli* Counts for Samples Collected in Whites Creek, FY2021

A stormwater sample collected on November 18, 2020, measured 3,106 MPN/100 mL at Steamboat Creek at Rhodes Road and exceeds the WQS established for Steamboat Creek. Baseflow samples at Steamboat Creek at Rhodes Road measured 52 MPN/100 mL in winter and 165 MPN/100 mL in summer. South Evans Creek baseflow samples measured 18.5 MPN/100 mL in winter and 178.9 MPN/100 mL in summer (**Figure 5-52**).



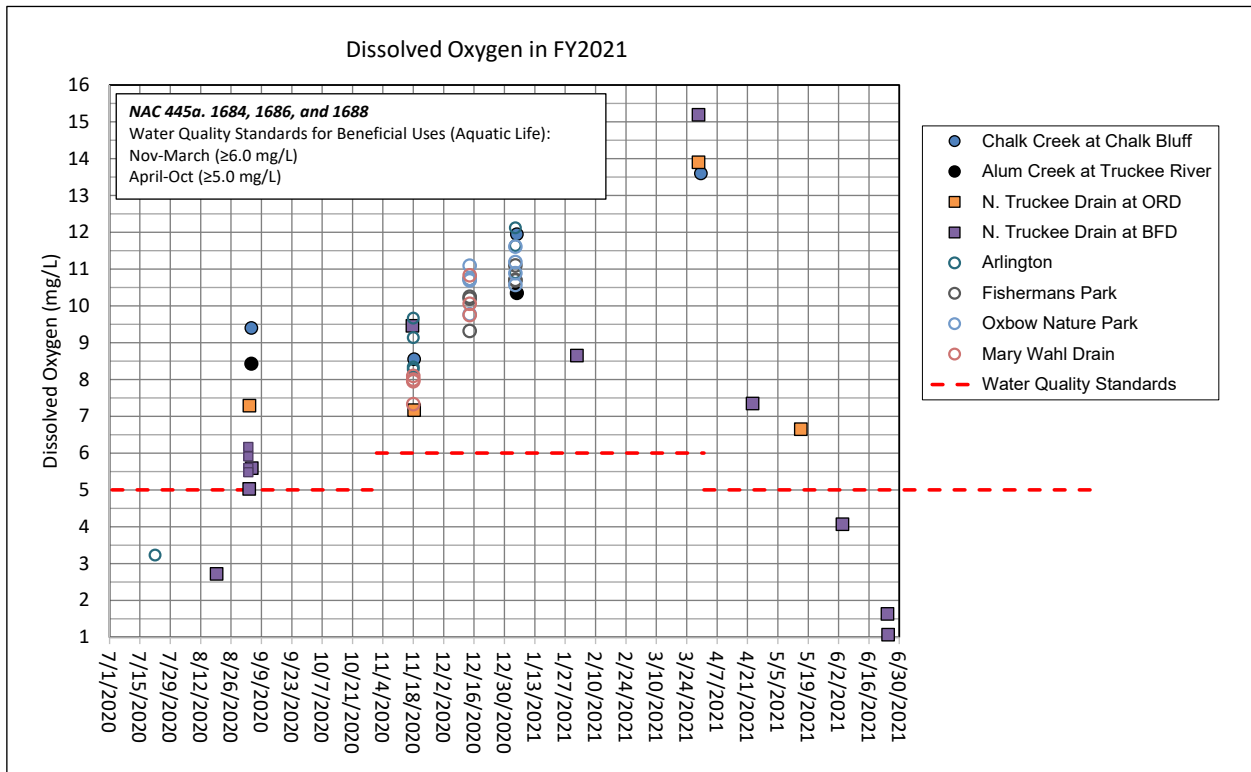
**Figure 5-52** E.coli Counts for Samples Collected in Steamboat Creek, FY2021

#### 5.4.6 PHYSICAL AND CHEMICAL PARAMETERS: DISSOLVED OXYGEN, pH, SPECIFIC CONDUCTANCE AND TURBIDITY

Physical and chemical parameters were measured of waters sampled during each site visit and when streamflow was present. This section presents these data from all monitoring stations to provide greater context for water quality conditions throughout the monitoring year. NDEP (2014) recognizes that instantaneous measures of physical and chemical parameters are only representative of a specific point in time and can naturally vary over a 24-hour period.

DO concentrations measured in FY2021 are shown in **Figure 5-53**, **Figure 5-54**, and **Figure 5-55**, grouped by their listed water body and specific numeric criterion for DO. In the Truckee River, WQS for DO varies depending on the time of year, and unlike other constituents, represents the lowest acceptable value.

DO concentrations ranged from 1.1 mg/L to as high as 15.2 mg/L at all stations discharging to the Truckee River in FY2021 (**Figure 5-53**). Most DO concentrations measured across all stations discharging to the Truckee River met the WQS to protect beneficial uses. Measurements that did not meet the WQS included stormwater in North Truckee Drain at Big Fish Drive in August 2020 and June 2021. Higher DO concentrations were measured during the winter months, whereas the lowest DO concentrations measured were during the summer and fall months. The highest concentrations measured were on North Truckee Drain and Chalk Creek during baseflow sampling in March 2021.



**Figure 5-53** DO Concentrations in Tributaries and Urban Stormwater Outfalls to the Truckee River from Lockwood upstream to California/Nevada State Line, FY2021



DO concentrations in Steamboat Creek and tributaries downstream from Rhodes Road were between 1.0 mg/L and 14.5 mg/L during FY2021 (**Figure 5-54**). All measurements met the WQS established to protect beneficial uses ( $\geq 3$  mg/L, below Rhodes Road to the Truckee River) except the Yori Drain sample from September 3, 2020 baseflow.

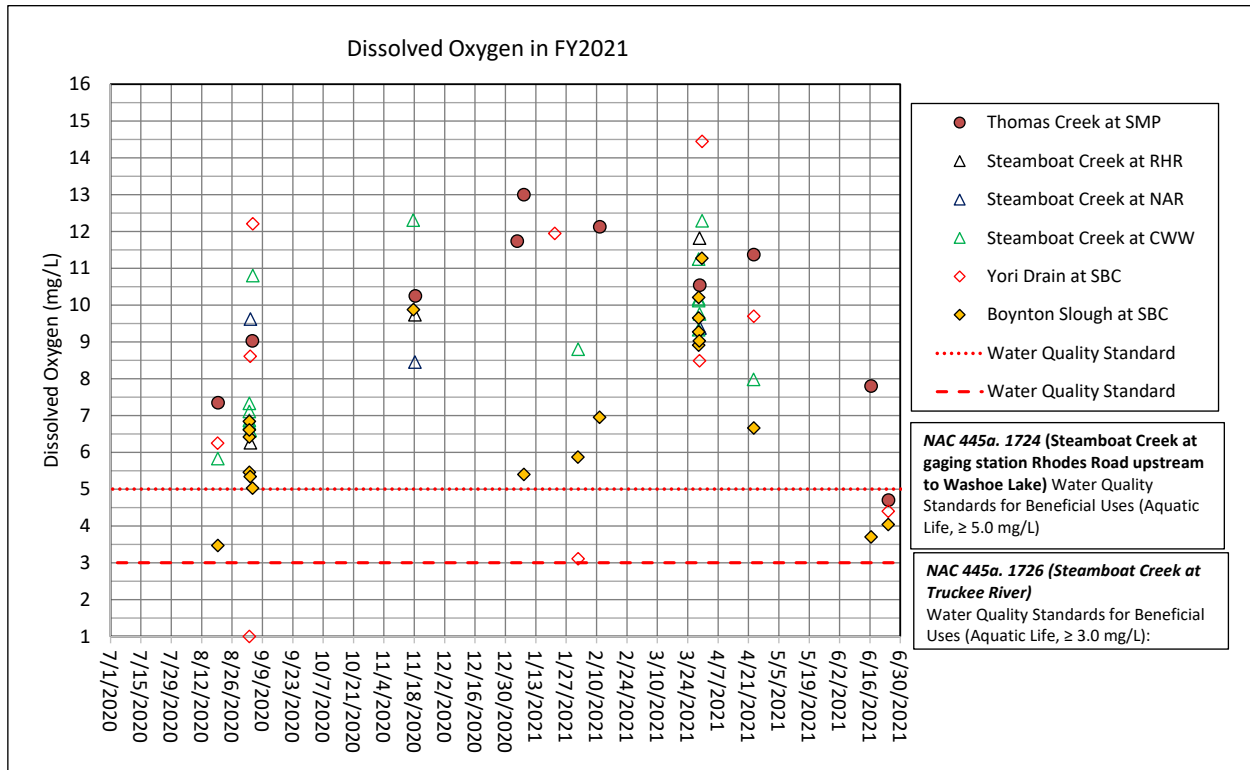


Figure 5-54 DO Concentrations in Steamboat Creek and Tributaries, FY2021

FY2021 DO concentrations in Whites Creek were limited to 4 measurements and ranged from 9.8 mg/L to 12.5 mg/L (Figure 5-55). All measures met the WQS to protect beneficial uses ( $\geq 5.0$  mg/L).

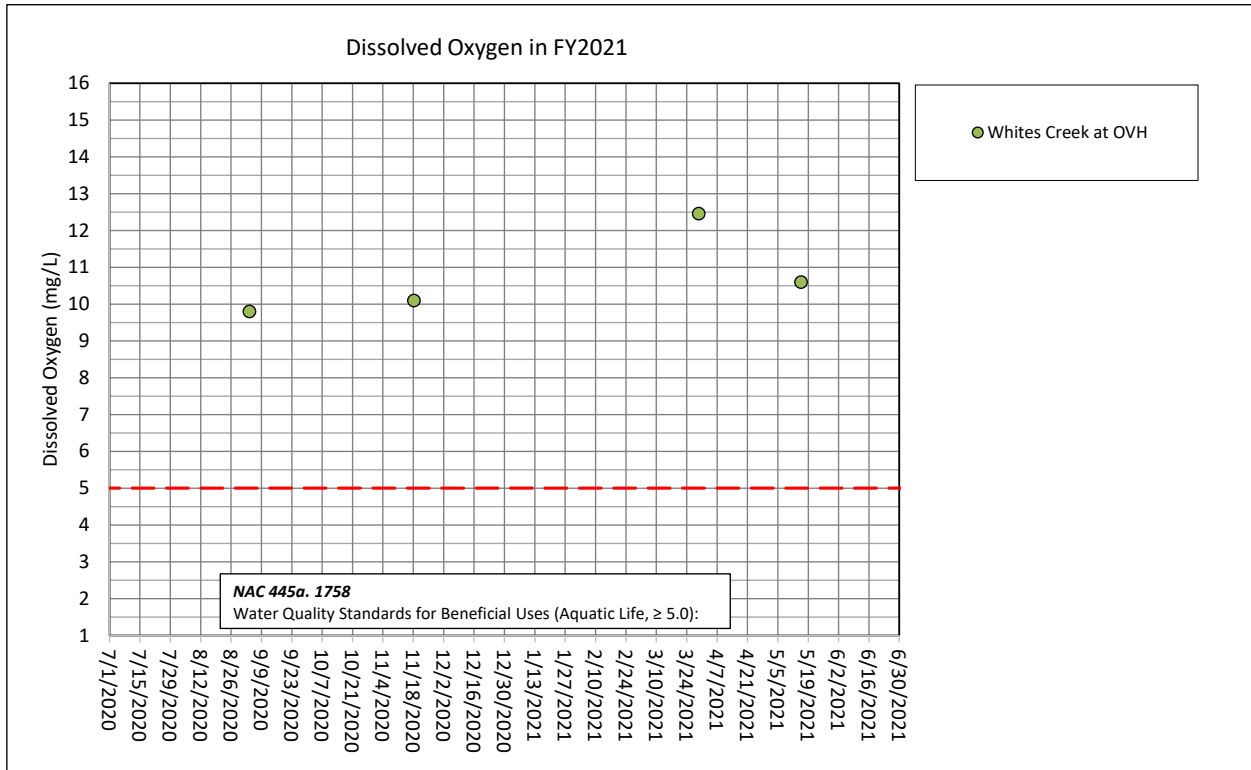
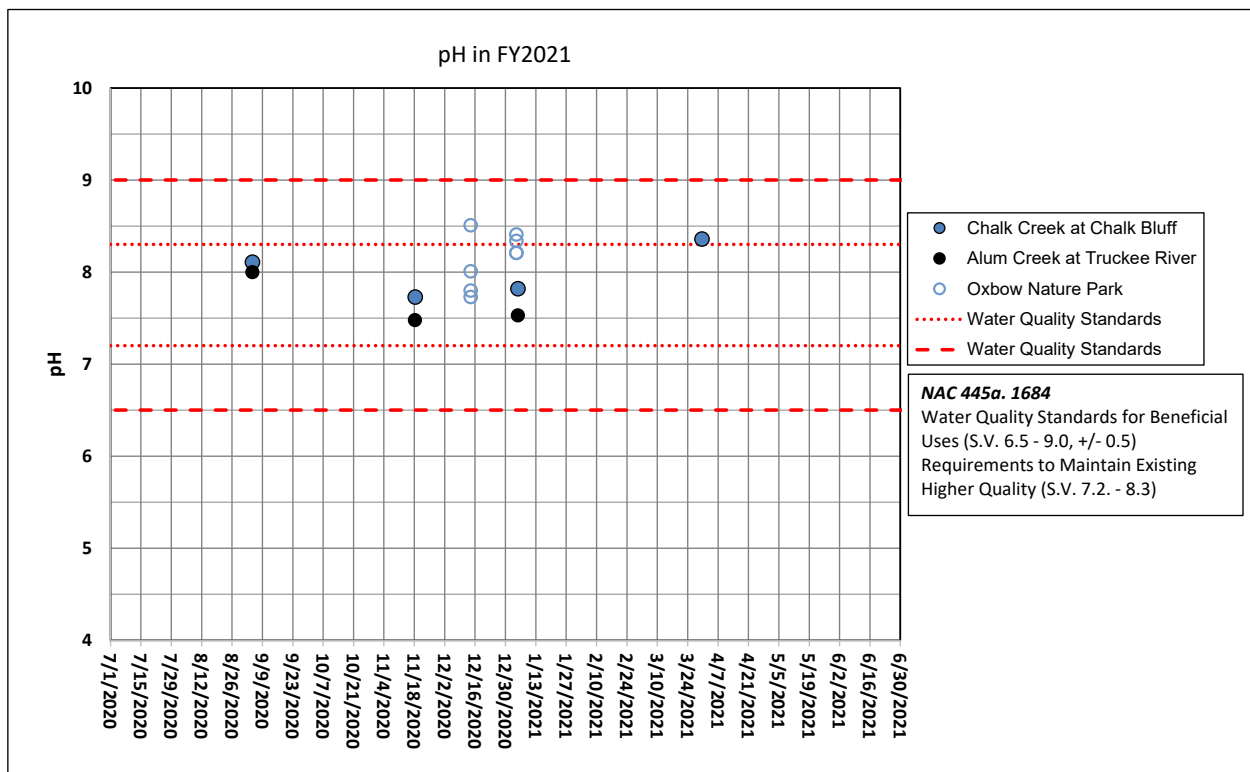


Figure 5-55 DO Concentrations in Whites Creek, FY2021

pH values measured throughout the Truckee Meadows in FY2021 during storms and baseflow are in **Figure 5-56**, **Figure 5-57**, **Figure 5-58**, **Figure 5-59**, and **Figure 5-60**, grouped by their listed water body and specific numeric criterion for pH.

pH ranged from 7.48 to 8.51 in the two tributaries and one urban stormwater outfall discharging to the Truckee River upstream of Idlewild in FY2021 (**Figure 5-56**). Thus, all pH measures met the WQS to protect beneficial uses, while a few measurements of pH from Oxbow Nature Park urban outfall and Chalk Creek failed to meet the requirement to maintain existing higher quality.



**Figure 5-56** pH in Tributaries and an Urban Stormwater Outfalls to the Truckee River upstream of Idlewild, FY2021

In FY2021 the pH of waters across all three urban stormwater outfalls discharging to the Truckee River between E. McCarran and Idlewild ranged from 6.04 to as high as 7.92 (Figure 5-57). All but one measurement of pH met the WQS to protect beneficial uses. A single sample from Arlington during a July 22, 2020 thunderstorm event measured slightly below this WQS. pH measured from Fisherman's Park II urban outfall failed to meet the requirements to maintain existing higher quality.

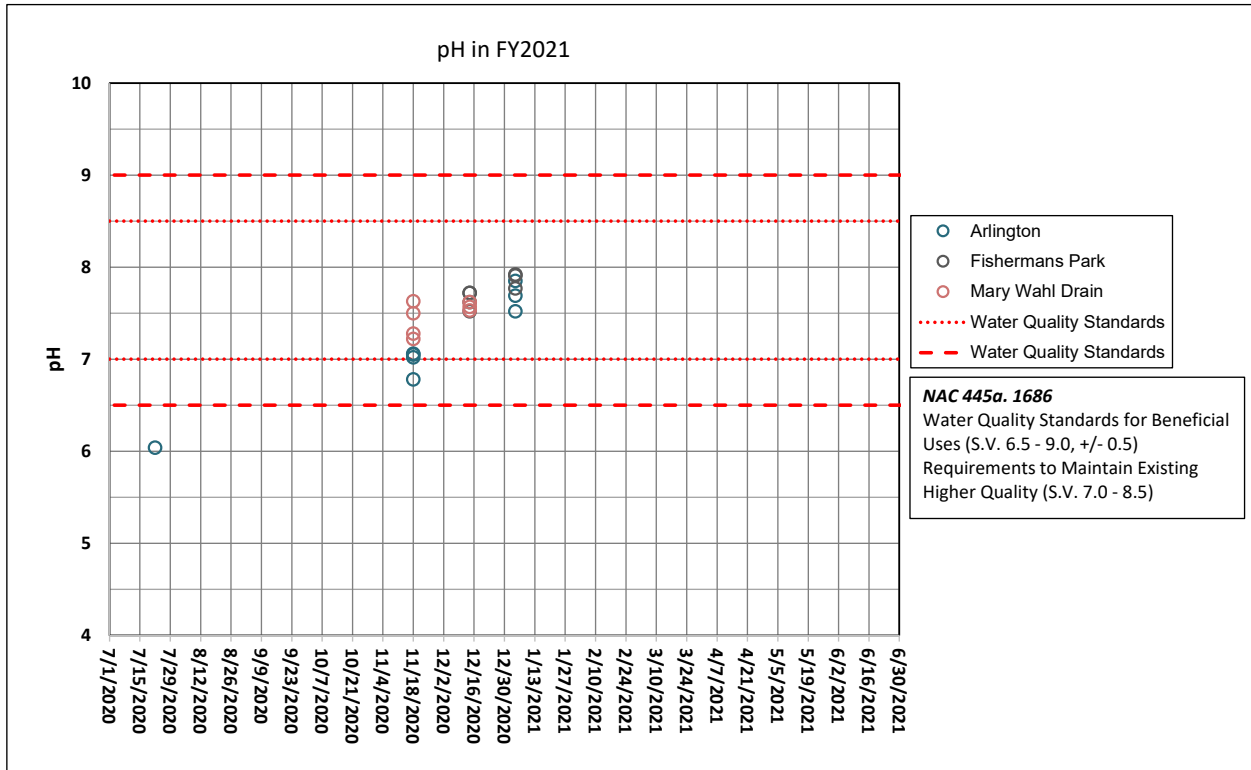


Figure 5-57 pH in Urban Stormwater Outfalls to the Truckee River from E. McCarran upstream to Idlewild, FY2021

In FY2021, the pH of waters from two stations on North Truckee Drain ranged from 6.46 to 8.51 (**Figure 5-58**). All but one sample met the WQS to protect beneficial uses. One sample from June 24, 2021 at North Truckee Drain at Big Fish Drive was slightly below the WQS range.

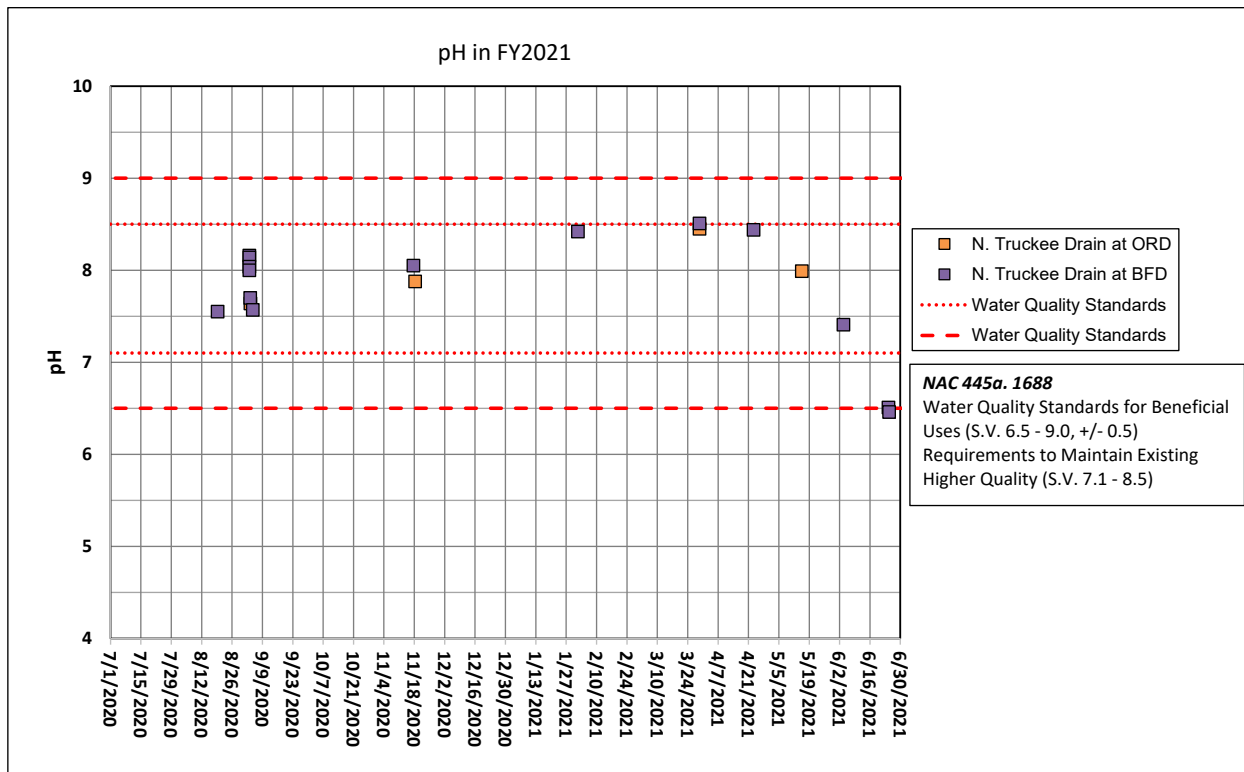


Figure 5-58 pH in the North Truckee Drain, FY2021

The pH of waters measured in Steamboat Creek and tributaries downstream of Rhodes Road ranged between 5.65 and 9.01 in FY2021 (**Figure 5-59**). All but one pH measurement was within the WQS. pH in Thomas Creek was 5.65 in February 2021. The NAC 445a. 1724 WQS of single value 6.5 to 9.0 is for Steamboat Creek at Rhodes Road only and all other measurements fall under NAC 445a. 1726 single value 6.0 to 9.0.

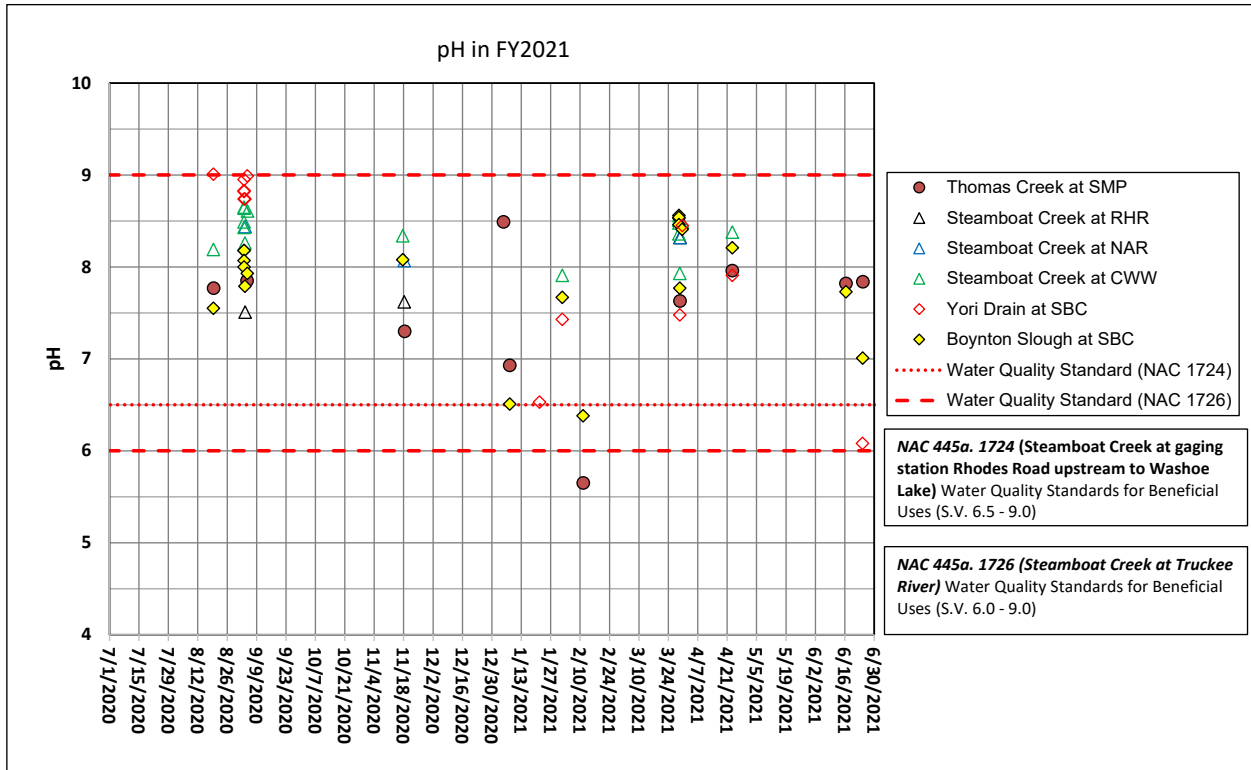


Figure 5-59 pH in Steamboat Creek and Tributaries, FY2021

The pH measured in waters of Whites Creek ranged between 7.50 and 8.00 (Figure 5-60), well within WQS established to protect beneficial uses in this tributary.

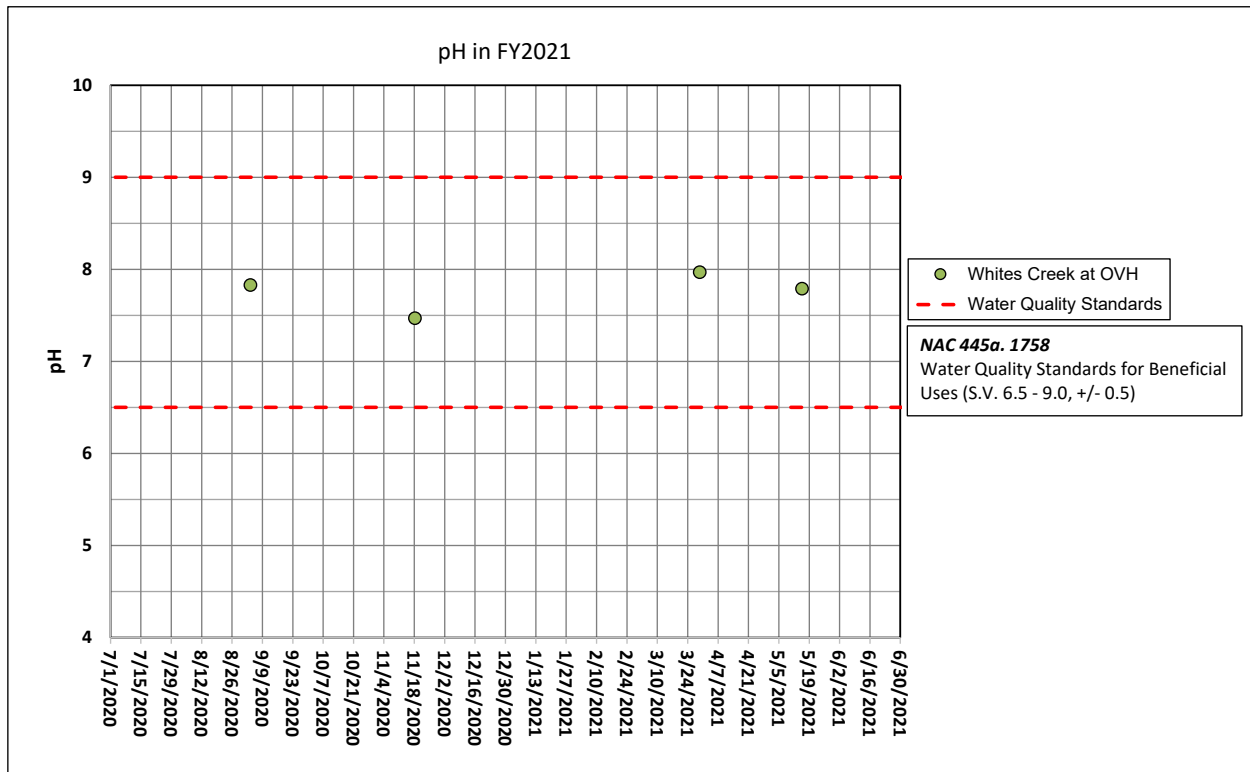
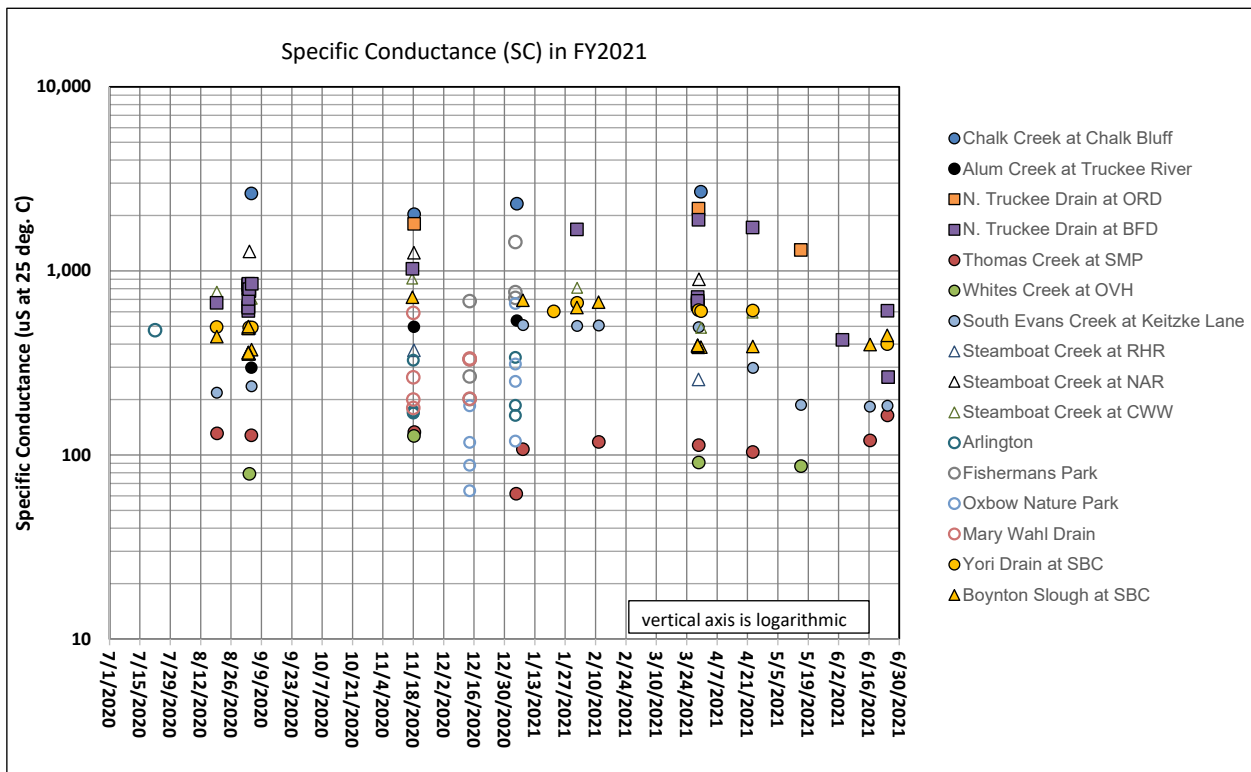


Figure 5-60 pH in Whites Creek, FY2021

**Figure 5-61** compares Specific Conductance (SC) across all monitoring stations in the Truckee Meadows in FY2021. Currently, there are no WQS for SC in the Truckee Meadows.

In FY2021, SC ranged between 62  $\mu\text{S}$  and 2,694  $\mu\text{S}$  across all locations measured. Chalk Creek exhibited the highest values of SC consistently through the monitoring year. Chalk Creek drains a watershed with geology and soils that can contribute to elevated SC; therefore, elevated values are generally within the range expected for this creek from previous years' data. In general, groundwater also can dissolve more ions, so higher SC values in baseflow can indicate groundwater-supported baseflow. Such may be the case in Steamboat Creek, where geothermal springs are present. Conversely, Whites Creek, Thomas Creek, and Yori Drain exhibit the lowest SC values. These creeks have watersheds that originate in higher elevations with streamflow supported by snowmelt runoff and Truckee River irrigation waters via tailouts from several irrigation ditches, while Yori Drain receives streamflow from the Truckee River via Pioneer Ditch.

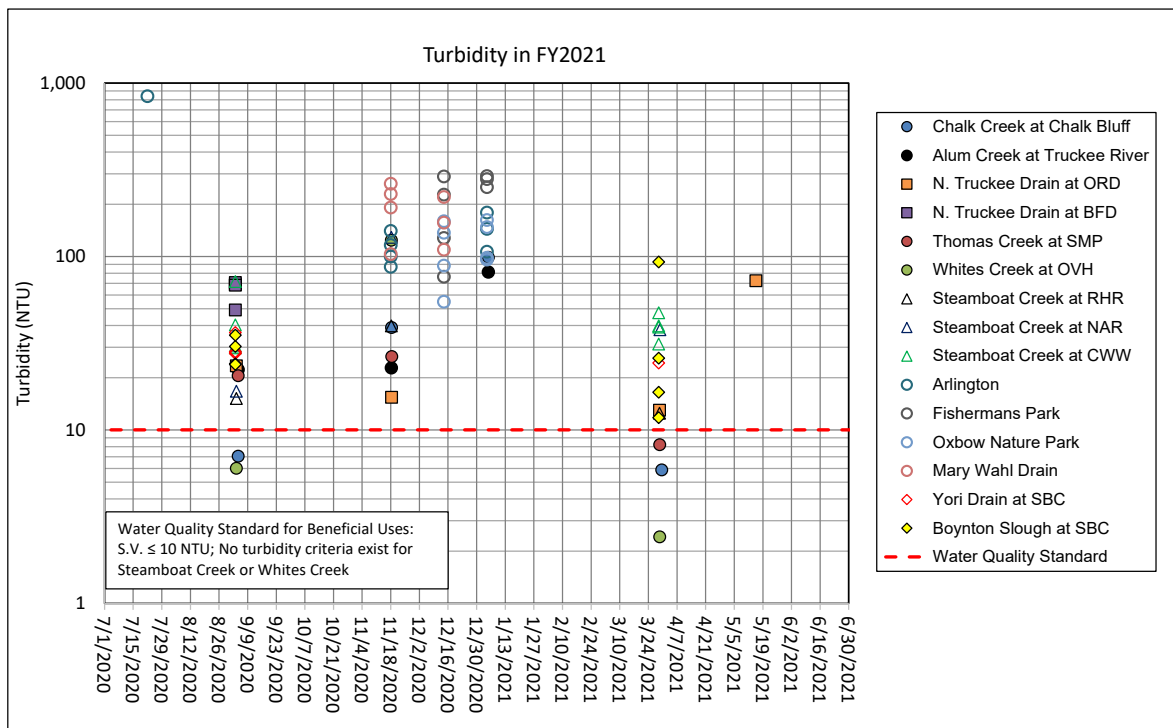


**Figure 5-61** SC at all Stations, Truckee Meadows, FY2021



**Figure 5-62** compares turbidity across all stations for samples collected in FY2021. The water quality standard for beneficial uses for the Truckee River specifies turbidity to be equal to or less than 10 NTU (S.V.). There are no established WQS for turbidity in Steamboat Creek and Whites Creek.

In FY2021 and across all tributaries, turbidity ranged between 6 NTU and 70 NTU during summer baseflow conditions and 1 NTU and 93 NTU during winter baseflow conditions. Both Steamboat Creek at Clean Water Way (71 NTU) and North Truckee Drain at Big Fish Drive (70 NTU) exhibited the highest turbidity values during summer baseflow. Steamboat Creek at Clean Water Way (47 NTU) and Boynton Slough at Steamboat Creek (93 NTU) exhibited the highest values during winter baseflow. Most samples collected during baseflow exceeded the WQS, except for Chalk Creek, Whites Creek, and Thomas Creek during the winter baseflow sampling. During storm events, all stormwater runoff samples exhibited turbidity values above the WQS, ranging between 15 NTU and 291 NTU. The highest stormwater turbidity value measured was at Arlington during the July 22, 2020 thunderstorm event (841 NTU). The Arlington sample was collected as a grab sample and was diluted 3 times to get a reading within the instrument tolerance limit (1000 NTU), the actual sample measurement is estimated > 2500 NTU.



**Figure 5-62** Turbidity at all Stations, Truckee Meadows, FY2021 Stormwater and Baseflow samples

## 5.5 Stormwater and Baseflow Instantaneous Load

This section compares instantaneous loads for a limited number of constituents (Total-N, Total-P, and TDS) across tributary stations where grab samples and instantaneous flow were measured simultaneously during stormwater and baseflow conditions without automated collection of multiple samples. The instantaneous load is calculated using instantaneous flow at the time of sample collection and the constituent concentration from a grab sample. While these measures are “snapshots” in time, they provide more information than the concentration alone. For example, the instantaneous load is commonly reported in lbs./day and allows for comparisons to TMDLs. Instantaneous loading rates for some tributary stations were not calculated because constituents were not detected above laboratory detection limits.

5.5.1 TOTAL-N INSTANTANEOUS LOAD

Figure 5-63 compares instantaneous load for Total-N at tributary stations as measured in FY2021 in both stormwater and baseflow.

Instantaneous Total-N loads from stormwater ranged from 3.9 lbs./day to 703 lbs./day. Instantaneous Total-N loads from baseflow samples ranged from 0.6 lbs./day to 55 lbs./day. The highest instantaneous Total-N loads were measured from North Truckee Drain and Steamboat Creek.

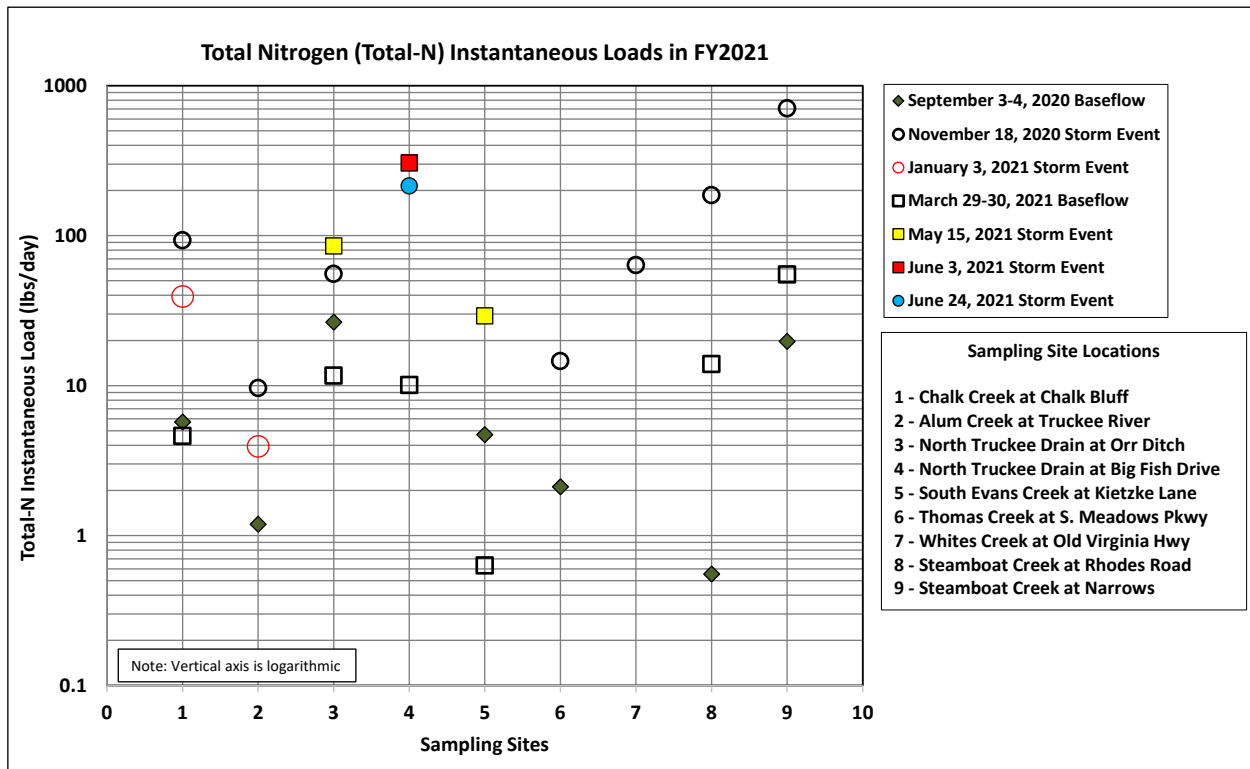
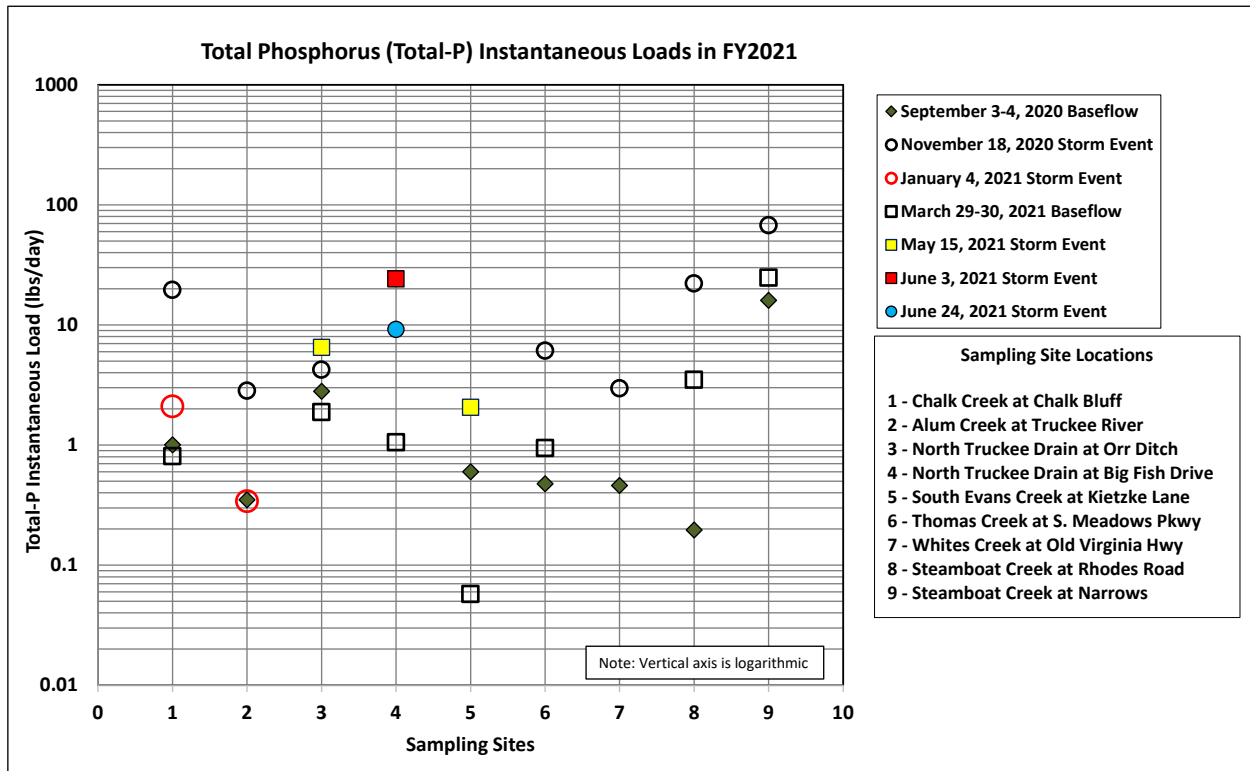


Figure 5-63 Total-N Instantaneous Load at Tributary Stations in Truckee Meadows, FY2021

### 5.5.2 TOTAL-P INSTANTANEOUS LOAD

**Figure 5-64** compares Total-P instantaneous loads at tributary stations measured in FY2021 in stormwater and baseflow.

Instantaneous Total-P load from stormwater samples ranged from 0.3 lbs./day to 68 lbs./day. Instantaneous Total-P load from baseflow samples ranged from 0.06 lbs./day to 24 lbs./day.

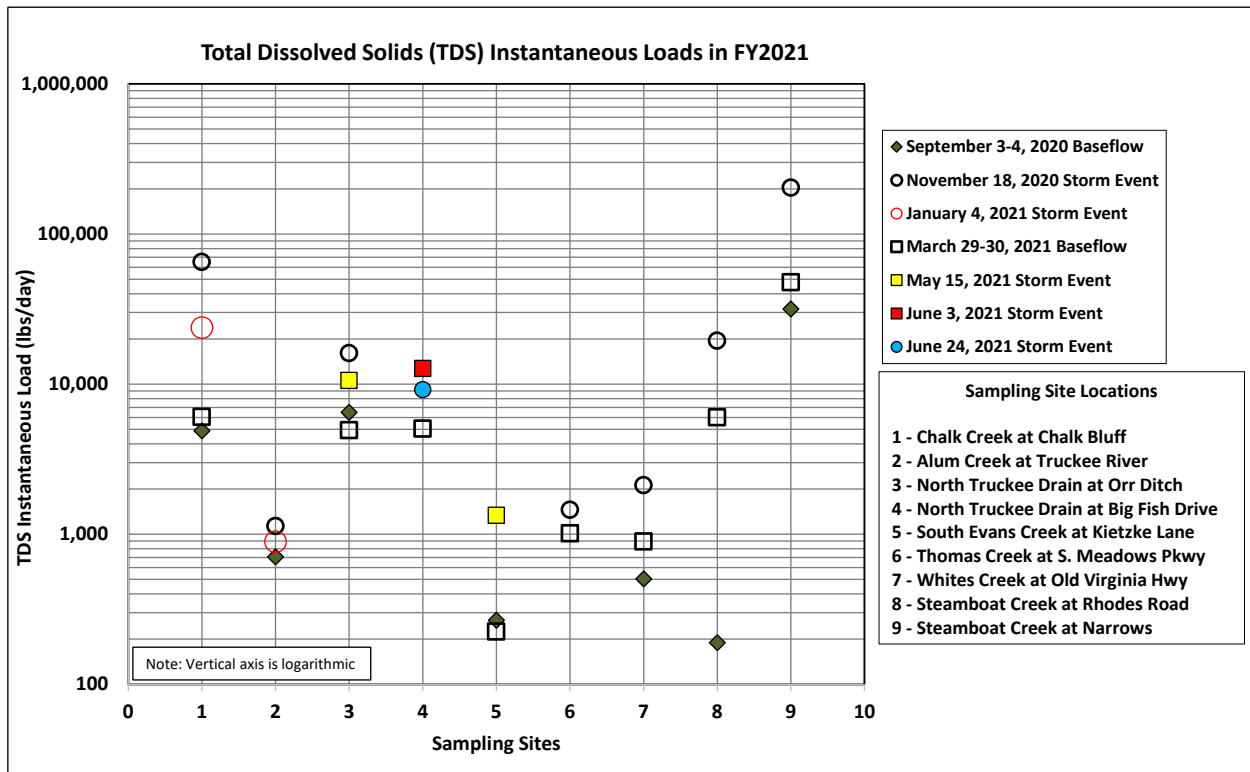


**Figure 5-64 Total-P Instantaneous Load at Tributary Stations in Truckee Meadows, FY2021**

5.5.3 TDS INSTANTANEOUS LOAD

**Figure 5-65** compares instantaneous load for TDS across tributary stations measured in FY2021 in both stormwater and baseflow. Instantaneous TDS load computed from stormwater ranged from 891 lbs./day to 203,069 lbs./day. Instantaneous TDS load computed from baseflow ranged from 189 lbs./day to 47,680 lbs./day.

The highest calculated instantaneous TDS load was measured during the November 18, 2020 storm event from Steamboat Creek at Narrows.



**Figure 5-65** TDS Instantaneous Load at Tributary Stations in Truckee Meadows, FY2021

## 5.6 Stormwater and Baseflow Constituent Loads and Yields

Automated sampling of stormwater at multiple times over the hydrograph was conducted during three storm events and two 24-hour baseflow periods representing both summer and winter baseflow conditions (see **Table 5-1**).

Runoff volumes and constituent load calculations are provided for the entire runoff event and for distinct segments of the storm hydrograph to show variability in load, which is directly related to variability in constituent concentrations and runoff volumes measured in each hydrograph segment. Constituent yields reflect the constituent loads normalized by watershed area and are calculated by dividing the storm load by the station watershed or contributing area (lbs./square mile). Constituent yields allow comparisons across tributaries with different watershed areas and within watersheds with 'nested' stations such that areas which deliver excess nutrients or constituents of concern can be better identified. Watershed areas with higher yields can then be prioritized for implementation of best stormwater management practices.

Total storm event runoff, loads, and yields measured at two urban stormwater outfalls during the November 18, 2020 storm event are provided in **Table 5-3**. Total storm rainfall was 0.16 inches at the Reno-Tahoe International Airport.

During the November 18 storm, Nitrogen, TDS, and TSS loading was generally higher in Mary Wahl Drain, likely the result of its larger drainage area and overall higher storm runoff volume. Phosphorous (both Total-P and Ortho-P) loading was similar between Arlington and Mary Wahl Drain. With higher concentrations and less total runoff, however, Arlington exhibits higher yields across all constituents, indicating that the contributing watershed to the Arlington storm drain is producing and delivering nutrients, sediment, and TDS at a much higher rate than the area contributing to the Mary Wahl Drain.

**Table 5-3 Storm Runoff Volumes and Constituent Loads and Yields from Arlington and Mary Wahl Urban Stormwater Outfalls, November 18, 2020 Storm Event**

Mary Wahl Drain								
Hydrograph	Storm Runoff Volume (cubic feet)	Storm Loads						
		Total-N	NO <sub>3</sub>	TKN	Total-P	Ortho-P	TDS	TSS
First Flush	11,666	8.0	2.8	5.0	0.4	0.3	306	87
Rising Limb	9,687	4.1	0.4	3.6	0.3	0.3	139	206
Peak	5,873	1.9	0.3	1.7	0.1	0.2	66	121
Falling Limb	10,194	4.3	0.5	3.8	0.2	0.3	102	153
<b>Totals</b>	<b>37,421</b>	<b>18</b>	<b>4.0</b>	<b>14</b>	<b>1.0</b>	<b>1.1</b>	<b>613</b>	<b>567</b>
	(cf/sq. mi)	(lbs./sq. mi)						
<b>Yields</b>	<b>14,968</b>	<b>7.3</b>	<b>1.6</b>	<b>5.7</b>	<b>0.4</b>	<b>0.4</b>	<b>245</b>	<b>227</b>

Arlington								
Hydrograph	Storm Runoff Volume (cubic feet)	Storm Loads						
		Total-N	NO <sub>3</sub>	TKN	Total-P	Ortho-P	TDS	TSS
First Flush	3,595	2.5	0.2	2.2	0.2	0.4	92	45
Rising Limb	1,118	0.4	0.06	0.4	0.1	0.1	18	10
Peak	2,787	1.2	0.2	1.1	0.3	0.2	35	26
Falling Limb	3,648	1.4	0.2	1.2	0.3	0.3	50	22
<b>Totals</b>	<b>11,148</b>	<b>5.5</b>	<b>0.6</b>	<b>4.8</b>	<b>0.9</b>	<b>1.0</b>	<b>195</b>	<b>103</b>
	(cf/sq. mi)	(lbs./sq. mi)						
<b>Yields</b>	<b>34,837</b>	<b>17</b>	<b>1.9</b>	<b>15</b>	<b>2.9</b>	<b>3.2</b>	<b>610</b>	<b>323</b>
		(lbs.)						
<b>TOTALS 2 URBAN OUTFALLS</b>		<b>24</b>	<b>4.7</b>	<b>19</b>	<b>1.9</b>	<b>2.1</b>	<b>808</b>	<b>670</b>

Notes:

Yields are estimates based on the contributing areas provided by City of Reno, City of Sparks, USGS or other entity.

Total stormwater load and yields measured from three urban outfalls during the December 13, 2020 storm event are shown in **Table 5-4**. Rainfall of 0.15 inches was recorded at the Reno-Tahoe International Airport over the course of this storm.

Constituent loads were generally higher at Fisherman's Park, again, likely due to its larger drainage area. However, normalized constituent yields are generally similar between the three urban outfalls, with slightly higher Total-N and TKN yields from the outfall at Oxbow Nature Park.



**Table 5-4 Storm Runoff Volumes, Constituent Loads and Yields from Oxbow Park, Fisherman's Park II and Mary Wahl Drain Urban Stormwater Outfalls, December 13, 2020 Storm Event**

Oxbow Nature Park								
Hydrograph	Storm Runoff Volume (cubic feet)	Storm Loads						
		Total-N	NO <sub>3</sub>	TKN	Total-P	Ortho-P	TDS	TSS
First Flush	966	0.2	0.02	0.2	0.04	0.02	10	8.4
Rising Limb	2,035	0.4	0.04	0.4	0.04	0.04	14	15
Peak	2,183	0.3	0.03	0.3	0.02	0.03	12	19
Falling Limb	7,299	0.7	0.08	0.6	0.1	0.09	44	19
<b>Totals</b>	<b>12,483</b>	<b>1.6</b>	<b>0.2</b>	<b>1.4</b>	<b>0.2</b>	<b>0.2</b>	<b>80</b>	<b>62</b>
	(cf/sq. mi)	(lbs./sq. mi)						
<b>Yields</b>	<b>34,674</b>	<b>4.4</b>	<b>0.5</b>	<b>3.9</b>	<b>0.5</b>	<b>0.5</b>	<b>222</b>	<b>172</b>

Fisherman's Park II								
Hydrograph	Storm Runoff Volume (cubic feet)	Storm Loads						
		Total-N	NO <sub>3</sub>	TKN	Total-P	Ortho-P	TDS	TSS
First Flush	8,108	4.7	0.5	4.0	0.2	0.08	228	101
Rising Limb	9,665	2.4	0.3	2.0	0.2	0.2	115	84
Peak	7,625	1.8	0.2	1.5	0.2	0.1	67	44
Falling Limb	28,950	5.1	1.0	4.0	0.6	0.5	361	67
<b>Totals</b>	<b>54,347</b>	<b>14</b>	<b>2.1</b>	<b>11</b>	<b>1.2</b>	<b>0.9</b>	<b>771</b>	<b>297</b>
	(cf/sq. mi)	(lbs./sq. mi)						
<b>Yields</b>	<b>10,656</b>	<b>2.7</b>	<b>0.4</b>	<b>2.3</b>	<b>0.2</b>	<b>0.2</b>	<b>151</b>	<b>58</b>

Mary Wahl Drain								
Hydrograph	Storm Runoff Volume (cubic feet)	Storm Loads						
		Total-N	NO <sub>3</sub>	TKN	Total-P	Ortho-P	TDS	TSS
First Flush	--	--	--	--	--	--	--	--
Rising Limb	4,662	1.4	0.3	1.1	0.07	0.07	70	41
Peak	11,438	3.9	0.7	3.2	0.4	0.2	129	207
Falling Limb	12,194	2.8	0.4	2.4	0.2	0.3	99	76
<b>Totals</b>	<b>28,294</b>	<b>8.1</b>	<b>1.3</b>	<b>6.7</b>	<b>0.7</b>	<b>0.5</b>	<b>297</b>	<b>324</b>
	(cf/sq. mi)	(lbs./sq. mi)						
<b>Yields</b>	<b>11,318</b>	<b>3.2</b>	<b>0.5</b>	<b>2.7</b>	<b>0.3</b>	<b>0.2</b>	<b>119</b>	<b>130</b>

TOTALS 3 URBAN OUTFALLS								
		<b>24</b>	<b>3.5</b>	<b>20</b>	<b>2.1</b>	<b>1.6</b>	<b>1,148</b>	<b>683</b>

Notes:

Yields are estimates based on the contributing areas provided by City of Reno, City of Sparks, USGS or other entity.

Total storm runoff, stormwater load, and yields measured from the storm of January 4, 2021, are presented in **Table 5-5** for three urban outfalls. Total storm rainfall was 0.08 inches at the Reno-Tahoe International Airport. We note that runoff volumes, loads, and yields could not be computed for the rising limb of the storm hydrograph at two of the three outfalls due to the quick onset of the storm hydrograph. Sample collection began at the stage threshold collecting first flush samples, but the volume of stormwater between the onset of the storm and the peak flow was less than the calculated amount for sample collection and thus no samples were collected during the rising limb. The calculated volume of the samples is representative of the complete storm hydrograph.

In general, Oxbow Nature Park outfall exhibited higher yields across all constituents measured compared to all three locations.

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**Table 5-5 Storm Runoff Volumes, Constituent Loads and Yields from Oxbow Park, Fisherman's Park II and Arlington Urban Stormwater Outfalls, January 4, 2021 Storm Event**

Oxbow Nature Park								
Hydrograph	Storm Runoff Volume (cubic feet)	Storm Loads						
		Total-N	NO <sub>3</sub>	TKN	Total-P	Ortho-P	TDS	TSS
First Flush	3,043	0.6	0.07	0.6	0.07	0.04	68	32.3
Rising Limb	3,748	0.5	0.05	0.4	0.05	0.04	44	17.1
Peak	5,650	0.9	0.07	0.8	0.2	0.06	71	67.0
Falling Limb	6,560	0.7	0.07	0.6	0.1	0.07	45	41.0
<b>Totals</b>	<b>19,002</b>	<b>2.7</b>	<b>0.3</b>	<b>2.4</b>	<b>0.4</b>	<b>0.2</b>	<b>228</b>	<b>157</b>
	(cf/sq. mi)	(lbs./sq. mi)						
<b>Yields</b>	<b>52,783</b>	<b>7.4</b>	<b>0.7</b>	<b>6.7</b>	<b>1.1</b>	<b>0.6</b>	<b>635</b>	<b>437</b>

Fisherman's Park II								
Hydrograph	Storm Runoff Volume (cubic feet)	Storm Loads						
		Total-N	NO <sub>3</sub>	TKN	Total-P	Ortho-P	TDS	TSS
First Flush	1,070	0.6	0.07	0.5	0.04	0.02	55	55
Rising Limb	--	--	--	--	--	--	--	--
Peak	16,088	6.0	0.6	5.3	0.4	0.3	442	372
Falling Limb	9,989	3.1	0.4	2.6	0.3	0.1	243	262
<b>Totals</b>	<b>27,147</b>	<b>10</b>	<b>1.1</b>	<b>8.5</b>	<b>0.7</b>	<b>0.4</b>	<b>741</b>	<b>688</b>
	(cf/sq. mi)	(lbs./sq. mi)						
<b>Yields</b>	<b>5,323</b>	<b>1.9</b>	<b>0.2</b>	<b>1.7</b>	<b>0.1</b>	<b>0.1</b>	<b>145</b>	<b>135</b>

Arlington								
Hydrograph	Storm Runoff Volume (cubic feet)	Storm Loads						
		Total-N	NO <sub>3</sub>	TKN	Total-P	Ortho-P	TDS	TSS
First Flush	120	0.07	0.004	0.06	0.003	0.002	1.7	1.8
Rising Limb	--	--	--	--	--	--	--	--
Peak	2,724	0.7	0.1	0.6	0.1	0.1	26	34
Falling Limb	2,755	0.7	0.1	0.5	0.1	0.1	26	17
<b>Totals</b>	<b>5,599</b>	<b>1.5</b>	<b>0.2</b>	<b>1.2</b>	<b>0.2</b>	<b>0.2</b>	<b>53</b>	<b>52</b>
	(cf/sq. mi)	(lbs./sq. mi)						
<b>Yields</b>	<b>17,498</b>	<b>4.6</b>	<b>0.7</b>	<b>3.8</b>	<b>0.7</b>	<b>0.7</b>	<b>165</b>	<b>164</b>
		(lbs.)						
<b>TOTALS 3 URBAN OUTFALLS</b>		<b>14</b>	<b>1.5</b>	<b>12</b>	<b>1.3</b>	<b>0.9</b>	<b>1,022</b>	<b>898</b>

Notes:

Yields are estimates based on the contributing areas provided by City of Reno, City of Sparks, USGS or other entity.

### 5.6.1 REPRESENTATIVE BASEFLOW LOADS AND YIELDS FROM STEAMBOAT CREEK, YORI DRAIN, BOYNTON SLOUGH, AND NORTH TRUCKEE DRAIN

Representative baseflow constituent loads and yields were calculated for Boynton Slough, Yori Drain, Steamboat Creek at Clean Water Way, and North Truckee Drain at Big Fish Drive for 24 hours in the summer and the winter of FY2021. Yori Drain and Boynton Slough are tributaries to Steamboat Creek upstream of the Clean Water Way monitoring station.

Baseflow samples were collected hourly for 24 hours on September 3-4, 2020, for summer baseflow conditions and March 29-30, 2021, for winter baseflow conditions. Samples were composited into 4 groups to represent: (1) afternoon (12:00 – 17:00); (2) evening (18:00 – 23:00); (3) early morning (0:00 – 5:00); and (4) late morning (6:00 – 11:00). Loadings and sub-watershed yields were calculated for each period and at each station.

#### 5.6.1.1 Representative Summer Baseflow Constituent Loads and Yields

Representative summer baseflow loads and yields for Steamboat Creek at Clean Water Way, Yori Drain, Boynton Slough, and North Truckee Drain at Big Fish Drive are provided in **Table 5-6**. During this sampling event, Steamboat Creek baseflow ranged from 25 to 28 cfs, Boynton Slough baseflow ranged from 11 to 15 cfs, Yori Drain baseflow ranged from 5 to 8 cfs, and North Truckee Drain baseflow ranged from 4 to 5 cfs during the 24 hours sampled.

North Truckee Drain<sup>5</sup> and Steamboat Creek are significant tributaries to the Truckee River, draining 244 sq. miles and roughly 100 sq. miles, respectively, as shown in **Figure 5-66**, which also shows the computed loadings and yields during summer baseflows.

Summer constituent loads measured in Steamboat Creek and its nested catchments, Yori Drain and Boynton Slough, provide an opportunity to evaluate potential source areas of nutrients measured in Steamboat Creek at Clean Water Way. A nested watershed approach uses loads measured at the watershed outlet and sub-catchments to estimate loads from remaining ungaged/unsampled sub-catchments, and calculated yields for the different portions of the watershed. **Figure 5-67**, **Figure 5-68**, and **Figure 5-69** show

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<sup>5</sup> North Truckee Drain sampling location was relocated from Kleppe Lane to Big Fish Drive in 2018 to accommodate construction impacts to the former location. Actual drainage areas above these locations are unreported; the area provided here is an estimate.

Steamboat Creek watershed summer baseflow loads and yields for Total-N, Total-P, and TDS.

Across all three constituents sampled, Yori Drain exhibited the highest summer baseflow yields relative to other areas in the Steamboat Creek watershed. Yori Drain is a small sub-catchment within the Steamboat Creek watershed that consists of both urban and agricultural areas. Yori Drain also receives Truckee River water via Pioneer. Immediately upstream of its confluence with Steamboat Creek and the monitoring station, Yori Drain flows through a constructed wetland. The source of higher nutrients, TDS, and TSS is unknown but could be associated with any of these land-uses.

**Table 5-6 Representative Summer Baseflow Volumes, Constituent Loads and Yields from Boynton Slough, Yori Drain, North Truckee Drain and Steamboat Creek, September 3 and 4, 2020**

Boynton Slough at Steamboat Creek								
Baseflow Loads								
Hydrograph	Baseflow Runoff Volume	Total-N	NO <sub>3</sub>	TKN	Total-P	Ortho-P	TDS	TSS
	(cubic feet)	(lbs)						
Afternoon	265,118	23	6.3	17	3.3	1.8	3,310	844
Evening	267,487	18	6.8	12	3.0	2.2	3,841	534
Early Morning	216,868	15	5.8	9.1	2.3	1.8	2,708	433
Late Morning	232,013	17	5.6	12	2.9	2.0	3,042	579
<b>Totals</b>	<b>981,486</b>	<b>74</b>	<b>25</b>	<b>49</b>	<b>12</b>	<b>7.8</b>	<b>12,900</b>	<b>2,391</b>
	(cf/sq. mi)	(lbs./sq. mi)						
<b>Yields</b>	<b>20,237</b>	<b>1.5</b>	<b>0.5</b>	<b>1.0</b>	<b>0.2</b>	<b>0.2</b>	<b>266</b>	<b>49</b>

Yori Drain at Steamboat Creek								
Baseflow Loads								
Hydrograph	Baseflow Runoff Volume	Total-N	NO <sub>3</sub>	TKN	Total-P	Ortho-P	TDS	TSS
	(cubic feet)	(lbs)						
Afternoon	171,248	14	0.8	13	1.5	0.5	2,993	417
Evening	155,592	11	0.9	9.2	1.2	0.4	2,428	282
Early Morning	135,626	10	1.0	9.3	0.7	0.4	2,201	305
Late Morning	111,807	9.1	0.8	8.4	0.9	0.4	1,815	272
<b>Totals</b>	<b>574,273</b>	<b>44</b>	<b>3.5</b>	<b>40</b>	<b>4.2</b>	<b>1.7</b>	<b>9,438</b>	<b>1,276</b>
	(cf/sq. mi)	(lbs./sq. mi)						
<b>Yields</b>	<b>136,732</b>	<b>10</b>	<b>0.8</b>	<b>9.5</b>	<b>1.0</b>	<b>0.4</b>	<b>2247</b>	<b>304</b>

Steamboat Creek at Clean Water Way								
Baseflow Loads								
Hydrograph	Baseflow Runoff Volume	Total-N	NO <sub>3</sub>	TKN	Total-P	Ortho-P	TDS	TSS
	(cubic feet)	(lbs)						
Afternoon	520,380	49	3.6	45	6.5	6.8	12,994	2,859
Evening	536,940	33	2.2	30	9.4	6.4	13,743	1,475
Early Morning	513,990	25	4.5	21	8.3	6.7	14,118	1,091
Late Morning	484,830	27	4.5	23	9.4	7.3	13,620	1,029
<b>Totals</b>	<b>2,056,140</b>	<b>134</b>	<b>15</b>	<b>119</b>	<b>34</b>	<b>27</b>	<b>54,476</b>	<b>6,454</b>
	(cf/sq. mi)	(lbs./sq. mi)						
<b>Yields</b>	<b>8,427</b>	<b>0.5</b>	<b>0.1</b>	<b>0.5</b>	<b>0.1</b>	<b>0.1</b>	<b>223</b>	<b>26</b>

North Truckee Drain at Big Fish Drive								
Baseflow Loads								
Hydrograph	Baseflow Runoff Volume	Total-N	NO <sub>3</sub>	TKN	Total-P	Ortho-P	TDS	TSS
	(cubic feet)	(lbs)						
Afternoon	87,633	14.8	5.5	9.3	1.5	0.8	2,845	602
Evening	87,525	14.2	5.4	8.7	0.7	0.7	2,295	656
Early Morning	84,168	11.6	4.7	6.8	0.7	0.6	2,049	510
Late Morning	95,823	15.0	5.8	9.0	1.3	0.7	3,111	473
<b>Totals</b>	<b>355,149</b>	<b>55</b>	<b>21</b>	<b>34</b>	<b>4.1</b>	<b>2.8</b>	<b>10,299</b>	<b>2,240</b>
	(cf/sq. mi)	(lbs./sq. mi)						
<b>Yields</b>	<b>3,551</b>	<b>0.6</b>	<b>0.2</b>	<b>0.3</b>	<b>0.04</b>	<b>0.03</b>	<b>103</b>	<b>22</b>

Notes:

ISCO samplers are run to collect samples every hour for 24 hours during baseflow sampling. Each 6 hour set is composited into one composite sample totally 4 composite samples per 24 hour period.

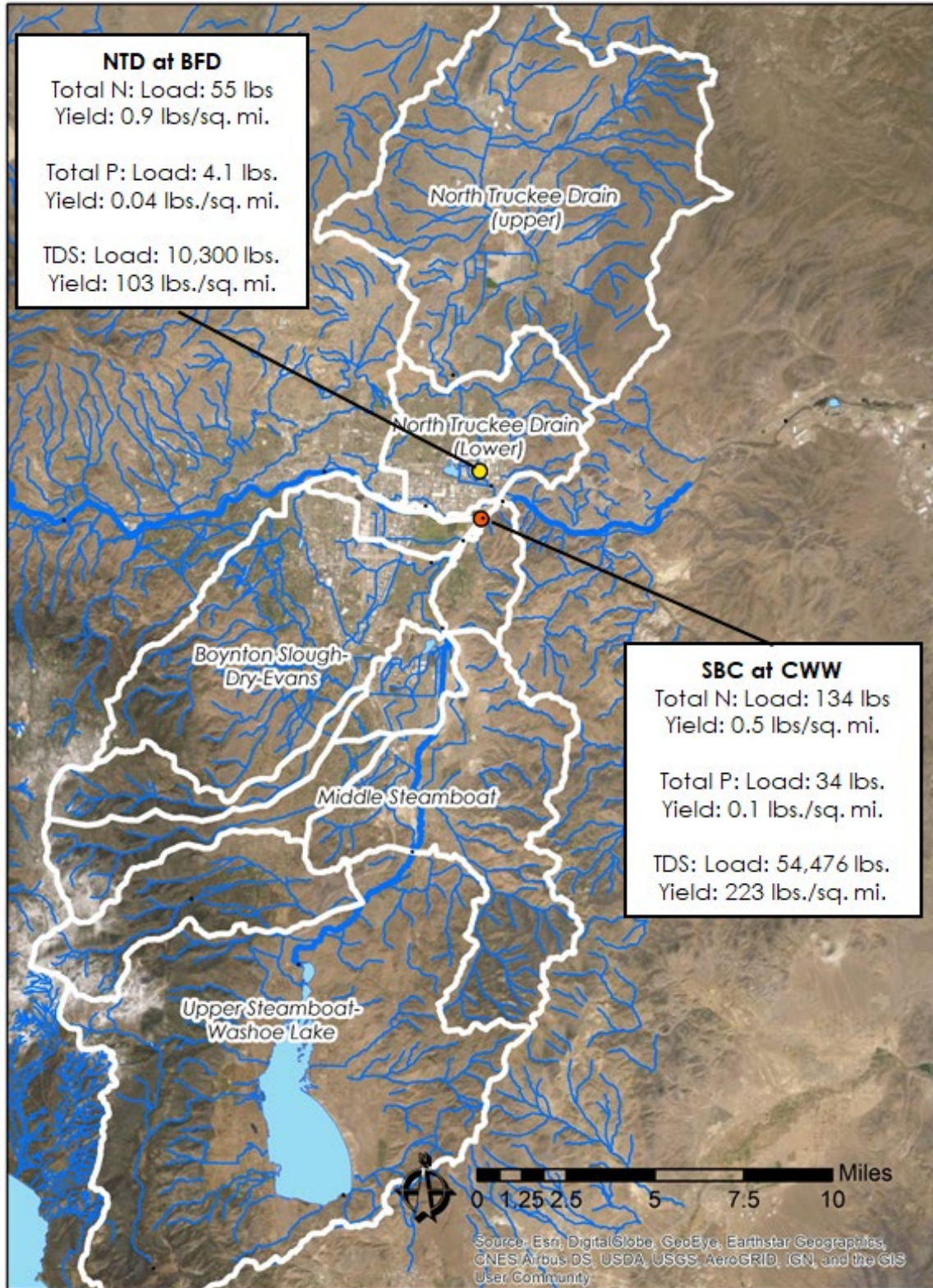


Figure 5-66 Comparison of Representative Summer Baseflow Constituent Loads and Yields, Steamboat Creek and North Truckee Drain, September 3-4, 2020

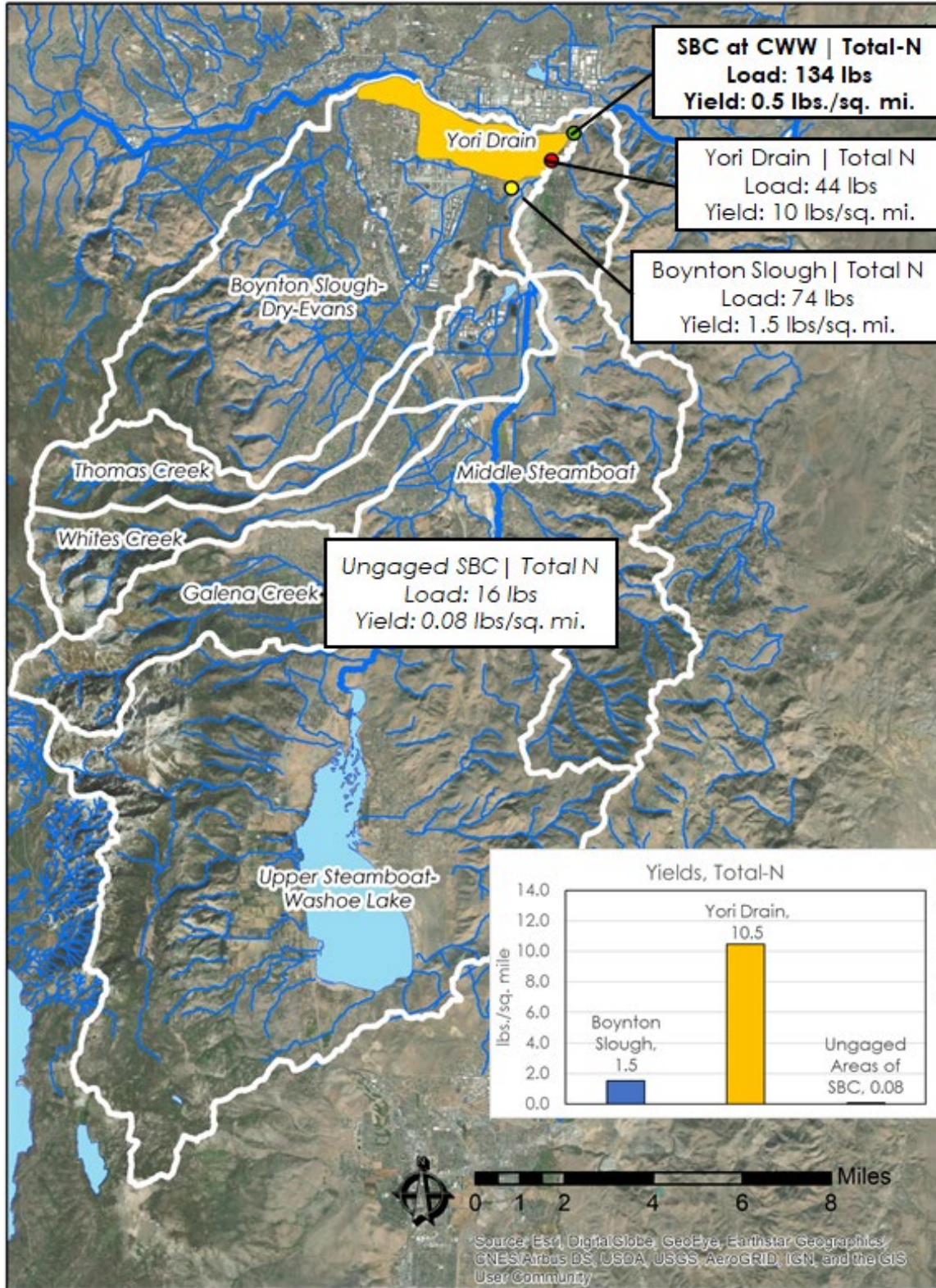


Figure 5-67 Comparison of Representative Summer Baseflow Total-N Loads and Yields, Steamboat Creek and Subcatchments, September 3-4, 2020



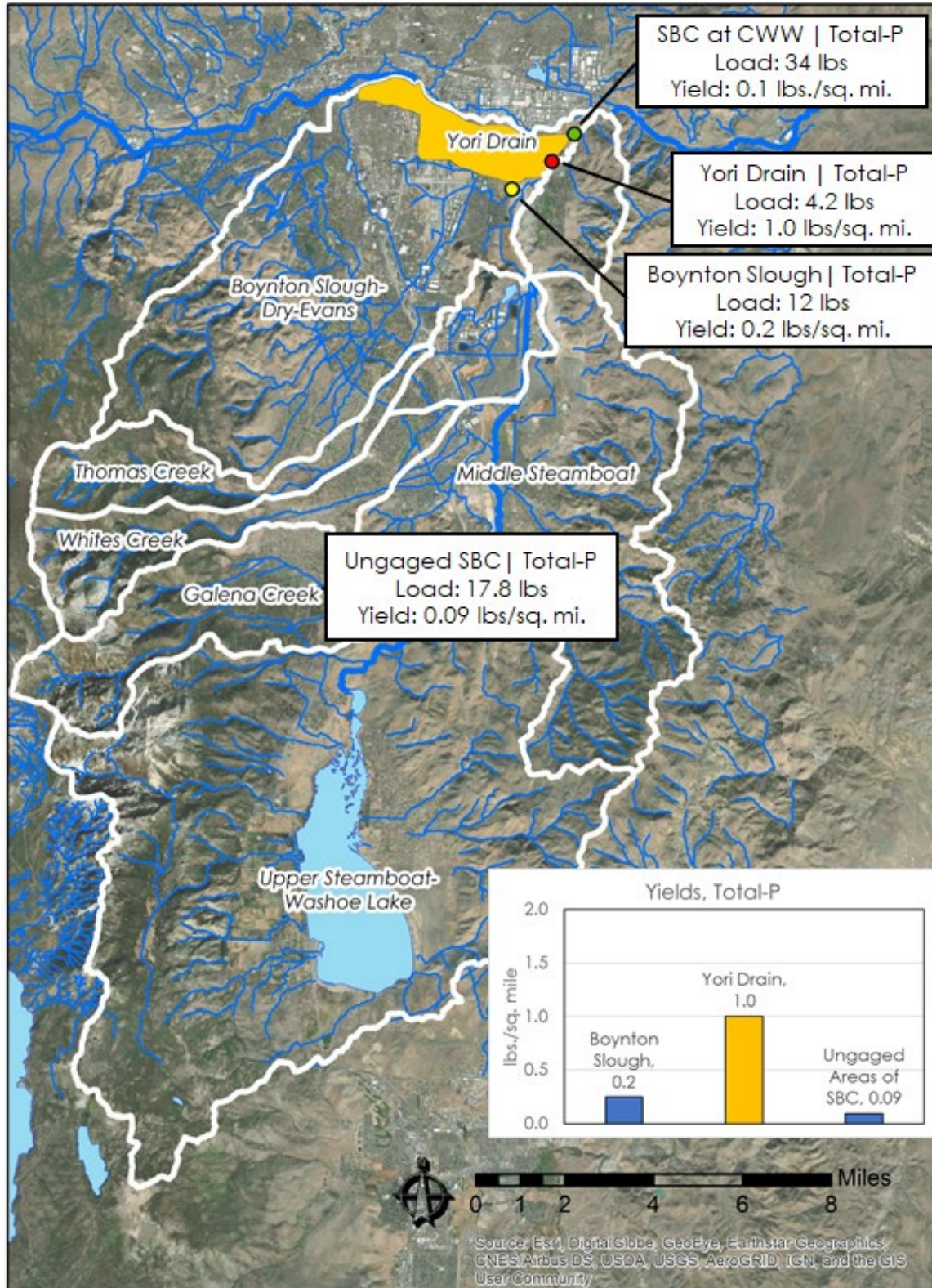


Figure 5-68 Comparison of Representative Summer Baseflow Total-P Loads and Yields, Steamboat Creek and Subcatchments, September 3-4, 2020

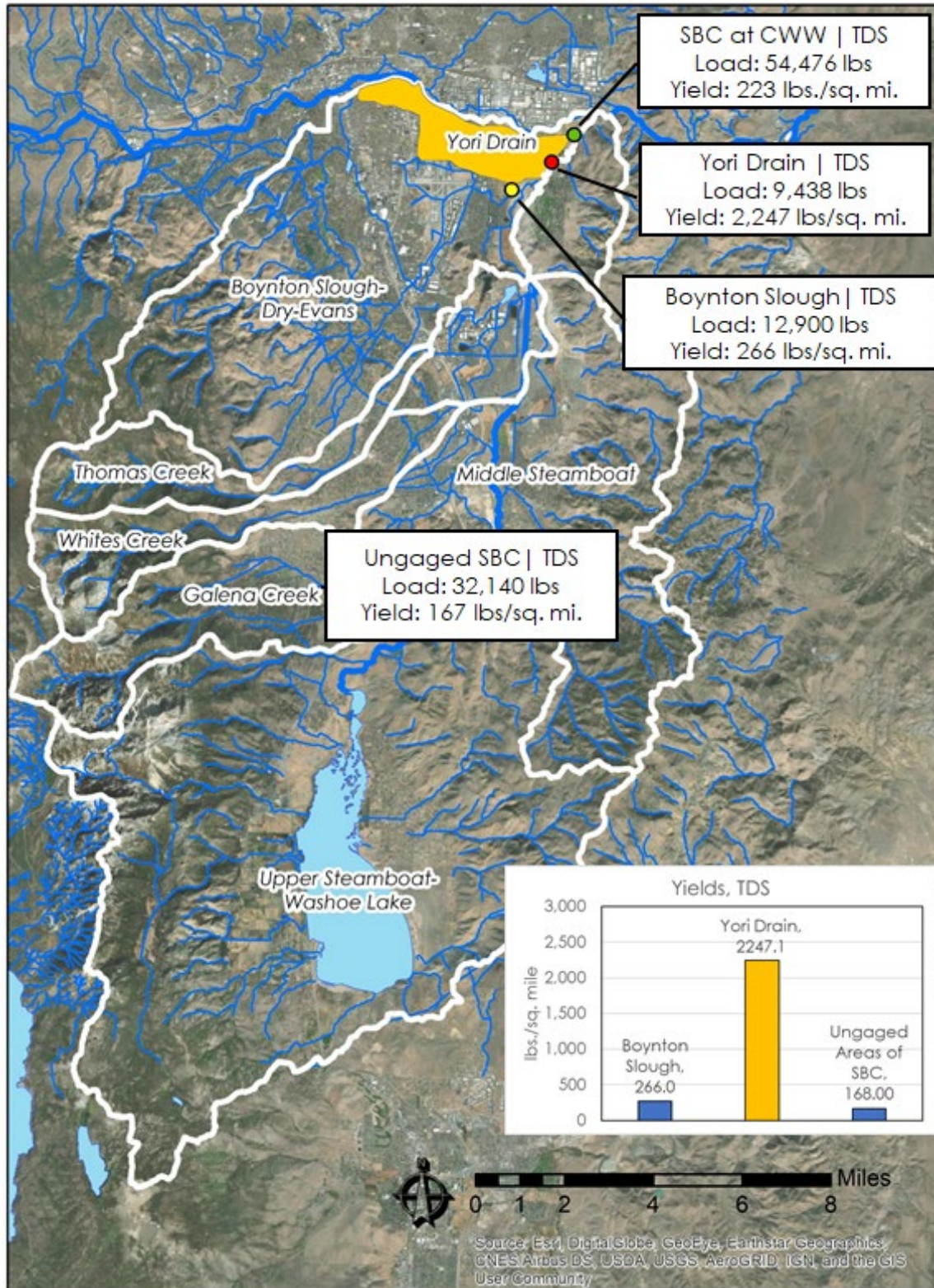


Figure 5-69 Comparison of Representative Summer Baseflow TDS Loads and Yields, Steamboat Creek and Subcatchments, September 3-4, 2020

### 5.6.1.2 Representative Winter Baseflow Constituent Loads and Yields

Representative winter baseflow loads and yields for Steamboat Creek at Clean Water Way, Yori Drain, and Boynton Slough are provided in **Table 5-7**. North Truckee Drain winter baseflow loads and yields were estimated based on one grab sample collected on March 29, 2021 and the USGS daily streamflow. Steamboat Creek baseflow ranged from 33 to 40 cfs and Boynton Slough baseflow ranged from 7 to 9 cfs during the 24 hours sampled. Yori Drain streamflow gaging station was not effective, but stage record implies that the flow rate did not change substantially during the sampling period and estimated between 4 and 6 cfs, and North Truckee Drain daily flow was 0.85 cfs for March 29, 2021.

North Truckee Drain<sup>6</sup> and Steamboat Creek are significant tributaries to the Truckee River, draining 244 sq. miles and roughly 100 sq. miles, respectively, as shown in **Figure 5-70**, which also shows the computed loadings and yields during winter baseflows.

Winter constituent loads measured in Steamboat Creek and its nested catchments, Yori Drain and Boynton Slough, provide an opportunity to evaluate potential source areas of nutrients measured in Steamboat Creek at Clean Water Way during non-irrigation season and using a nested watershed approach, similar to our summer analysis for irrigation season. **Figure 5-71**, **Figure 5-72**, and **Figure 5-73** show Steamboat Creek watershed winter baseflow loads and yields for Total-N, Total-P, and TDS.

Across all three constituents sampled, Yori Drain exhibited the highest winter baseflow yields relative to other areas in the Steamboat Creek watershed. These results are consistent with yields measured during summer baseflow. The source of higher nutrients, TDS (and TSS) is unknown but could be associated with any of the upstream land-uses which are characterized as both urban and agricultural with diversions from the Truckee River (Pioneer Ditch).

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<sup>6</sup> North Truckee Drain sampling location was relocated from Kleppe Lane to Big Fish Drive in 2018 to accommodate construction impacts to the former location. Actual drainage areas above these locations are unreported; the area provided here is an estimate.

**Table 5-7 Representative Winter Baseflow Volumes, Constituent Loads and Yields from Boynton Slough, Yori Drain and Steamboat Creek, March 29 and 30, 2021**

Boynton Slough at Steamboat Creek								
		Baseflow Loads						
Hydrograph	Baseflow Runoff Volume	Total-N	NO <sub>3</sub>	TKN	Total-P	Ortho-P	TDS	TSS
<i>(cubic feet)</i>		<i>(lbs)</i>						
Afternoon	162,418	16	3.9	12	1.1	0.7	2,129	1,115
Evening	167,775	10	4.1	6.0	1.7	0.9	1,885	429
Early Morning	154,576	8.4	3.9	4.5	1.1	0.8	2,123	212
Late Morning	163,590	8.4	4.0	4.4	1.4	0.8	2,043	174
<b>Totals</b>	<b>648,359</b>	<b>43</b>	<b>16</b>	<b>27</b>	<b>5.3</b>	<b>3.2</b>	<b>8,180</b>	<b>1,931</b>
<i>(cf/sq. mi)</i>		<i>(lbs./sq. mi)</i>						
<b>Yields</b>	<b>13,368</b>	<b>0.9</b>	<b>0.3</b>	<b>0.6</b>	<b>0.1</b>	<b>0.1</b>	<b>169</b>	<b>40</b>

Yori Drain at Steamboat Creek								
		Baseflow Loads						
Hydrograph	Baseflow Runoff Volume	Total-N	NO <sub>3</sub>	TKN	Total-P	Ortho-P	TDS	TSS
<i>(cubic feet)</i>		<i>(lbs)</i>						
Afternoon	113,204	7.1	16	7.1	0.9	0.3	2,332	276
Evening	103,015	6.4	14	6.4	0.8	0.3	2,122	251
Early Morning	93,744	5.9	13	5.9	0.8	0.3	1,931	228
Late Morning	106,868	6.7	15	6.7	0.9	0.3	2,202	260
<b>Totals</b>	<b>416,831</b>	<b>26</b>	<b>57</b>	<b>26</b>	<b>3.4</b>	<b>1.3</b>	<b>8,587</b>	<b>1,015</b>
<i>(cf/sq. mi)</i>		<i>(lbs./sq. mi)</i>						
<b>Yields</b>	<b>99,245</b>	<b>6.2</b>	<b>14</b>	<b>6.2</b>	<b>0.8</b>	<b>0.3</b>	<b>2045</b>	<b>242</b>

Steamboat Creek at Clean Water Way								
		Baseflow Loads						
Hydrograph	Baseflow Runoff Volume	Total-N	NO <sub>3</sub>	TKN	Total-P	Ortho-P	TDS	TSS
<i>(cubic feet)</i>		<i>(lbs)</i>						
Afternoon	717,660	49	16	35	10	7.2	19,265	1,971
Evening	754,380	52	16	37	8.5	7.5	15,070	2,543
Early Morning	695,790	43	14	30	7.8	7.8	13,900	2,476
Late Morning	634,140	40	14	26	7.5	7.5	15,835	2,098
<b>Totals</b>	<b>2,801,970</b>	<b>184</b>	<b>60</b>	<b>127</b>	<b>34</b>	<b>30</b>	<b>64,069</b>	<b>9,088</b>
<i>(cf/sq. mi)</i>		<i>(lbs./sq. mi)</i>						
<b>Yields</b>	<b>11,483</b>	<b>0.8</b>	<b>0.2</b>	<b>0.5</b>	<b>0.1</b>	<b>0.1</b>	<b>263</b>	<b>37</b>

Notes:

ISCO samplers are run to collect samples every hour for 24 hours during baseflow sampling.

Each 6 hour set is composited into one composite sample totally 4 composite samples per 24 hour period.

Yori Drain had instrument failure after eight collected samples; six samples were used for one composite laboratory sample

and volume was calculated for the first six hour period of sampling and estimated for the rest of the 24 hour period using stage data.

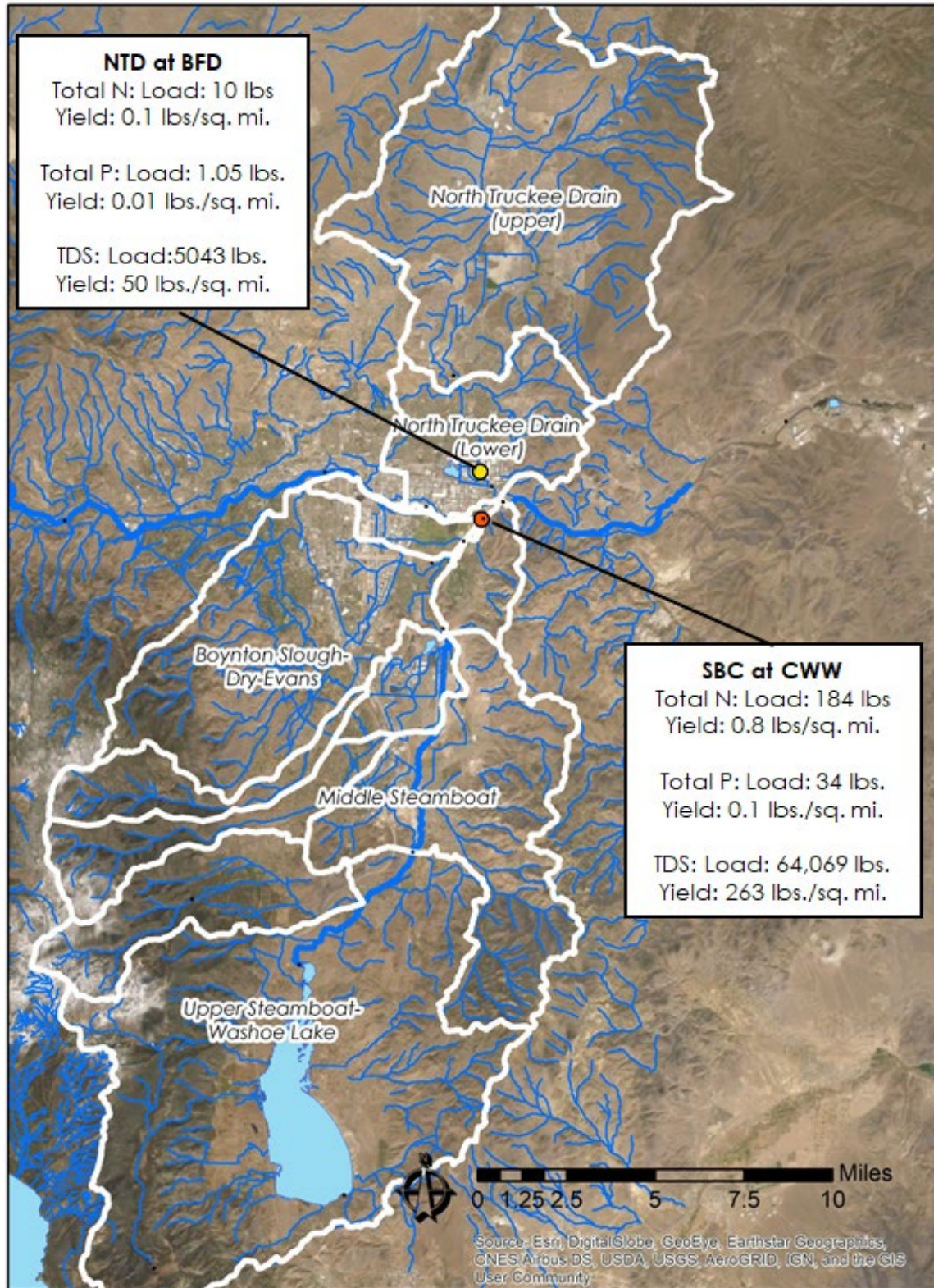


Figure 5-70 Comparison of Representative Winter Baseflow Constituent Loads and Yields, Steamboat Creek and North Truckee Drain, March 29-30, 2021

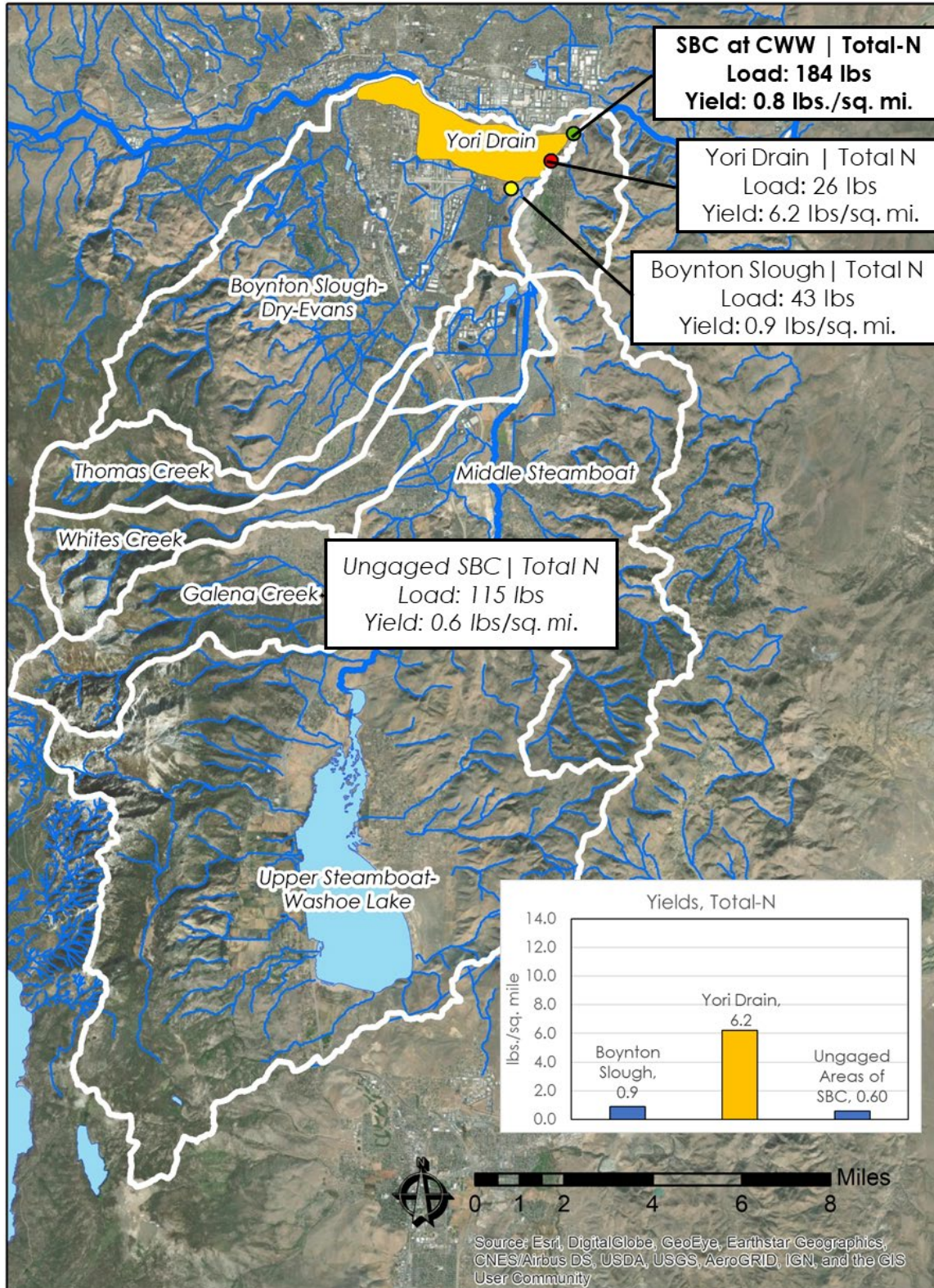


Figure 5-71 Comparison of Representative Winter Baseflow Total-N Loads and Yields, Steamboat Creek and Subcatchments, March 29-30, 2021

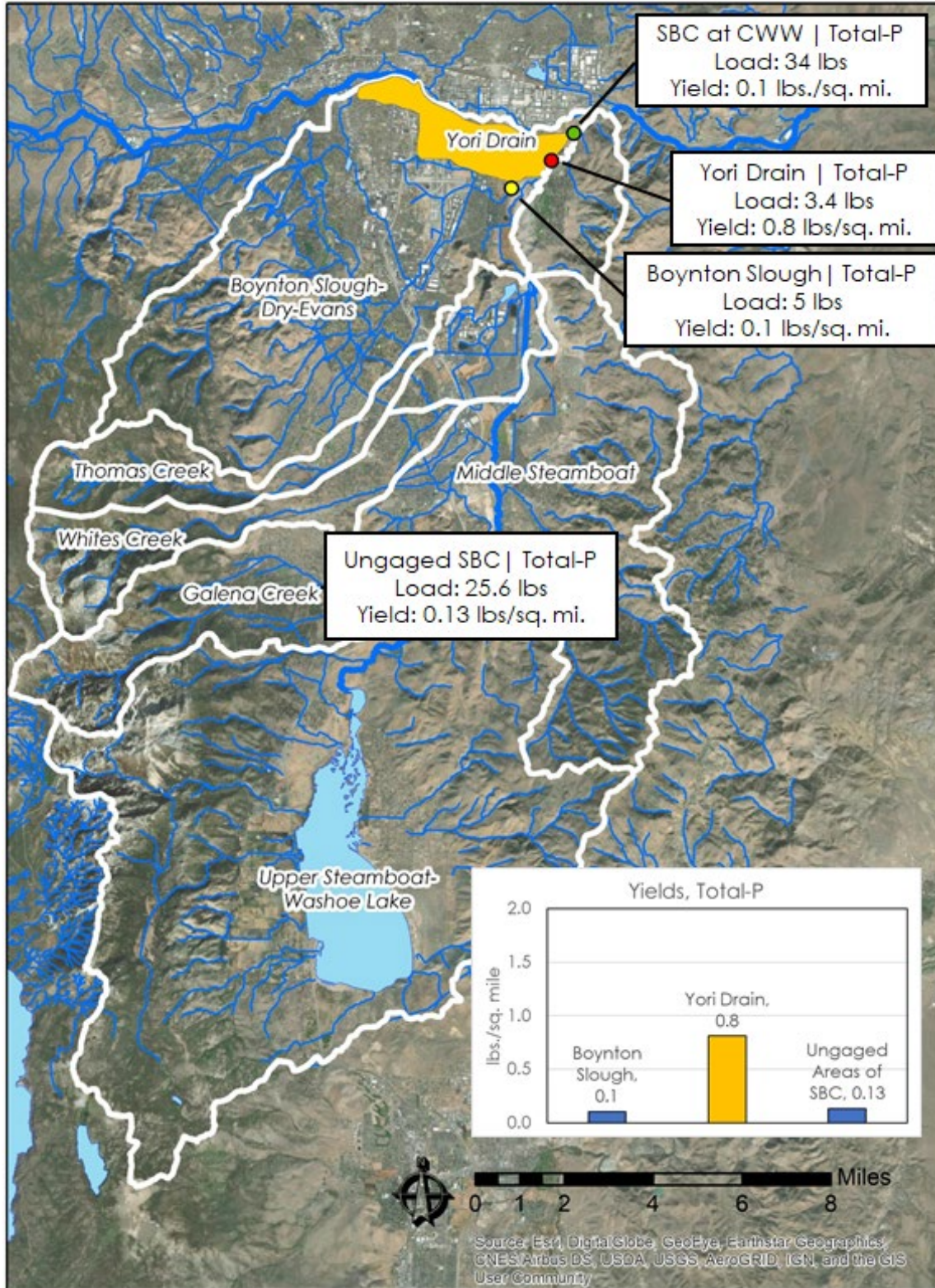


Figure 5-72 Comparison of Representative Winter Baseflow Total-P Loads and Yields, Steamboat Creek and Subcatchments, March 29-30, 2021

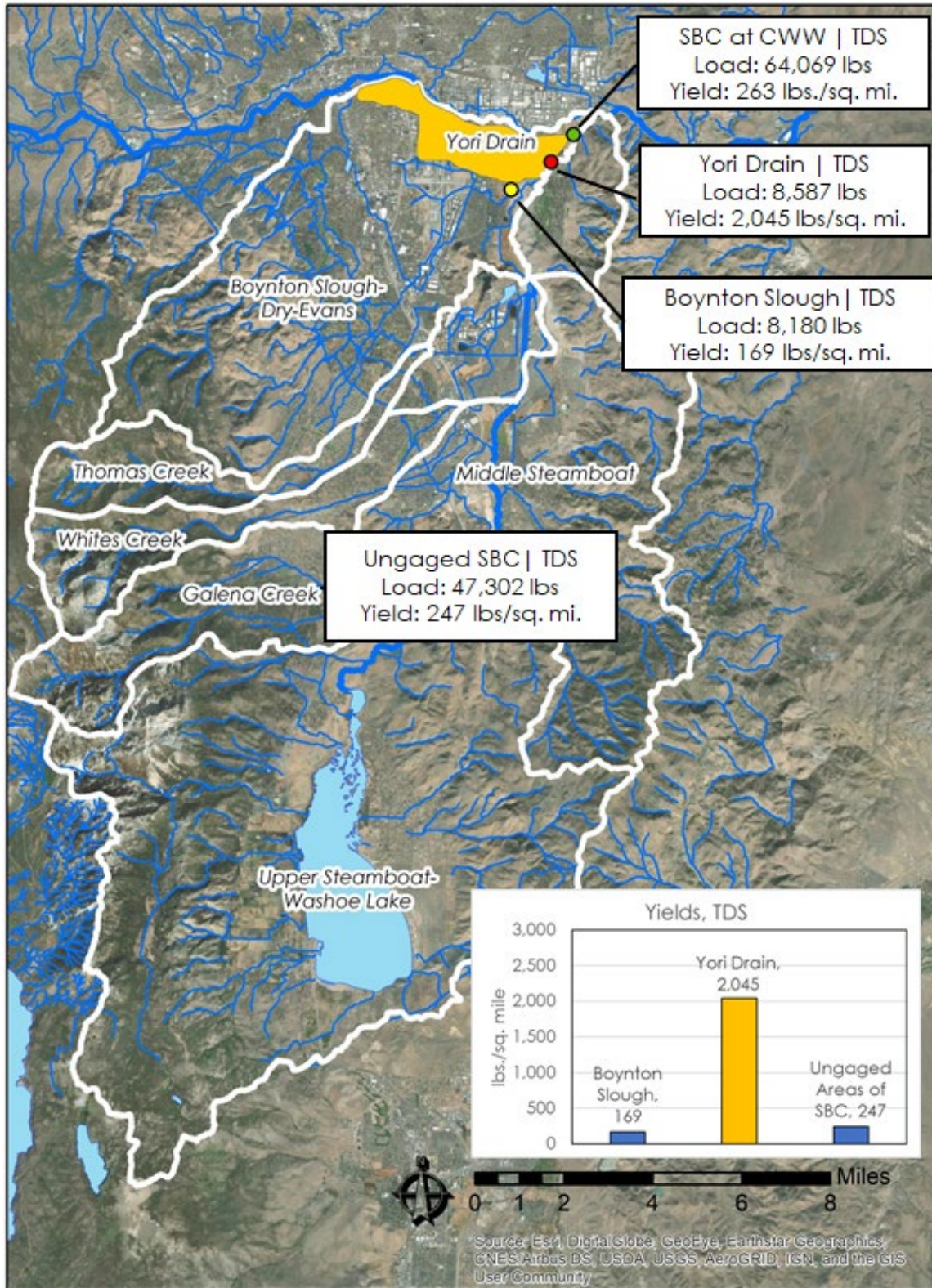


Figure 5-73 Comparison of Representative Winter Baseflow TDS Loads and Yields, Steamboat Creek and Subcatchments, March 29-30, 2021



### 5.6.2 TRUCKEE RIVER AT LOCKWOOD

NDEP (2020) reported that Total-N loads failed to meet the TMDL established for Truckee River at Lockwood for the assessment period 2016-2018. This is the first time since the TMDL was established in 1994 that the Truckee River did not meet this water quality standard at this location. Similar to previous assessment periods, instantaneous Total-P loads continue to exceed the TMDL at this location, while the TMDL for TDS continues to be met. Nutrient and TDS loads measured at tributaries as part of this stormwater program provide additional opportunities to identify potential sources of excess nutrients.

This section compares measured storm event loads to the allocated load under established TMDLs for three constituents in the Truckee River at Lockwood: Total-N, Total-P, and TDS. Since the FY2021 sampled storms were less than 24 hours in duration, we conservatively assume the total storm load approximates a daily load.

**Table 5-8** shows the daily load measured in stormwater runoff on November 18, 2020, compared to TMDLs established for the Truckee River at Lockwood.

**Table 5-7 Approximate Daily Load Measured from Storm Event Runoff, November 18, 2020**

<b>Daily Loads: November 18, 2020 Stormwater Loads</b>			
Monitoring Station	Constituents		
	Total-N	Total-P	TDS
<i>Urban Outfalls</i>	<i>(lbs/day)</i>		
Mary Wahl	18.3	1.0	613
Arlington	17.3	2.9	610
<b>Totals</b>	<b>36</b>	<b>3.9</b>	<b>1,222</b>
<b>Load Allocations, TMDL Truckee River at Lockwood</b>	<b>500</b>	<b>80</b>	<b>780,360</b>
<b>Daily Load, Percent of Load Allocation under TMDL</b>	<b>7%</b>	<b>5%</b>	<b>0.2%</b>

Notes:

*Load Allocation for the TMDLs represent the total expected or allowable load from non-point and background sources. TMDLs for Total-N, Total-P, and TDS established in 1994 (NDEP, 1994)*

The approximate calculated daily load from the Arlington urban outfall during the November 18, 2020 storm was 17 lbs. of Total-N, 3 lbs. of Total-P, and 610 lbs. of TDS. The approximate daily load from the Mary Wahl Drain urban outfall was 18 lbs. of Total-N, 1 lb. of Total-P, and 613 lbs. of TDS. In total, approximate daily load for Total-N and Total-P represent 7 and 5 percent of the load allocations under the Truckee River TMDL for these constituents. Daily load for TDS represents 0.2 percent of the load allocations under the Truckee River TMDL. These measurements are from two outfalls that total roughly 2.8 square miles of watershed or 1.7% of the Truckee Meadows area.

**Table 5-9** shows daily load measured from stormwater runoff measured from three urban outfalls during the December 13, 2020 storm event compared to TMDLs established for the Truckee River at Lockwood.

**Table 5-8 Daily Load Measured from Storm Event Runoff, December 13, 2020**

<b>Daily Loads: December 13, 2020 Stormwater Loads</b>			
Monitoring Station	Constituents		
	Total-N	Total-P	TDS
<i>Urban Outfalls</i>			
	<i>(lbs/day)</i>		
Oxbow Nature Park	1.6	0.2	80
Fisherman's II	14	1.2	771
Mary Wahl	8.1	0.7	297
<b>Totals</b>	<b>24</b>	<b>2.1</b>	<b>1,148</b>
<b>Load Allocations, TMDL Truckee River at Lockwood</b>	<b>500</b>	<b>80</b>	<b>780,360</b>
<b>Daily Load, Percent of Load Allocation under TMDL</b>	<b>5%</b>	<b>3%</b>	<b>0.1%</b>

Notes:

*Load Allocation for the TMDLs represent the total expected or allowable load from non-point and background sources. TMDLs for Total-N, Total-P, and TDS established in 1994 (NDEP, 1994)*

Approximate Total-N daily load from all three urban outfalls totaled 24 lbs.; Total-P daily load totaled roughly 2.1 lbs.; and TDS daily load totaled 1,148 lbs. Total-N load during this storm was 5 percent of the daily load allocations, and Total-P was 3 percent of the daily load allocations at Lockwood. TDS load was approximately 0.1 percent of the daily load allocations for Lockwood. These small numbers are indicative of the size of the storm and the low volume of run-off. Load calculated from these stations reflects contributions from approximately 7.96 square miles of the urban watershed area or 4.9% of the Truckee Meadows area.

**Table 5-10** shows daily load measured in stormwater runoff from three urban outfalls during the January 4, 2021 storm event compared to TMDLs established for the Truckee River at Lockwood.

**Table 5-9 Daily Load Measured in Storm Event Runoff, January 4, 2021**

<b>Daily Loads: January 4, 2021 Stormwater Loads</b>			
Monitoring Station	Constituents		
	Total-N	Total-P	TDS
<i>Urban Outfalls</i>	<i>(lbs/day)</i>		
Oxbow Nature Park	2.7	0.4	228
Fisherman's II	10	0.7	741
Arlington	1.5	0.2	53
<b>Totals</b>	<b>14</b>	<b>1.3</b>	<b>1,022</b>
<b>Load Allocations, TMDL Truckee River at Lockwood</b>	<b>500</b>	<b>80</b>	<b>780,360</b>
<b>Daily Load, Percent of Load Allocation under TMDL</b>	<b>3%</b>	<b>2%</b>	<b>0.1%</b>

Notes:

*Load Allocation for the TMDLs represent the total expected or allowable load from non-point and background sources. TMDLs for Total-N, Total-P, and TDS established in 1994 (NDEP, 1994)*

Total rainfall during this storm event averaged 0.12 inches at six stations around the Truckee Meadows—a small precipitation event. Total-N daily load from these three outfalls totaled 14 lbs., equivalent to 3 percent of the load allocated under the TMDL for Total-N. Total-P daily load from the three outfalls totaled roughly 1.3 lbs., equal to 2 percent of the load allocated under the TMDL. TDS daily load from these stations totaled 1,022 lbs., 0.1 percent of the load allocated under the TMDL. Load calculated from these stations reflects contributions from approximately 5.78 square miles of the urban watershed area or 3.5% of the Truckee Meadows area.

5.6.3 BASEFLOW LOAD COMPARED TO TOTAL MAXIMUM DAILY LOAD ESTABLISHED FOR THE TRUCKEE RIVER AT LOCKWOOD

Summer baseflow load was measured on September 3 and 4, 2020. Daily load results compared to the allocations under the TMDL are in **Table 5-11**.

**Table 5-10 Daily Load Measured from Baseflow in North Truckee Drain, Steamboat Creek, Boynton Slough, and Yori Drain, September 3-4, 2020**

Daily Loads: September 3 - 4, 2020 Baseflow Loads			
Monitoring Station	Constituents		
	Total-N	Total-P	TDS
<i>Tributaries</i>	<i>(lbs/day)</i>		
Steamboat Creek at Clean Water Way	134	34	54,476
<i>Yori Drain at Steamboat Creek</i>	44	4.2	9,438
<i>Boynton Slough at Steamboat Creek</i>	74	11.5	12,900
North Truckee Drain at Big Fish Drive	55	4.1	10,299
<b>Totals</b>	<b>189</b>	<b>38</b>	<b>64775</b>
<b>Load Allocations, TMDL Truckee River at Lockwood</b>	<b>500</b>	<b>80</b>	<b>780,360</b>
<b>Daily Load, Percent of Load Allocation under TMDL</b>	<b>38%</b>	<b>47%</b>	<b>8%</b>

Notes:

Load Allocation for the TMDLs represent the total expected or allowable load from non-point and background sources TMDLs for Total-N, Total-P, and TDS established in 1994 (NDEP, 1994)

*Totals are calculated using only Steamboat Creek at Clean Water Way and North Truckee Drain at Big Fish Drive, Yori Drain and Boynton Slough discharge into Steamboat Creek upstream of the Clean Water Way monitoring station.*

The total loads shown in **Table 5-11** represent those measured from Steamboat Creek at Clean Water Way and North Truckee Drain at Big Fish Drive, the two largest tributaries in the Truckee Meadows. Boynton Slough and Yori Drain discharge into Steamboat Creek upstream of the Clean Water Way monitoring location.

Daily winter baseflow loads were measured on Boynton Slough, Yori Drain, and Steamboat Creek. The measurements compared with TMDLs are presented in **Table 5-12** for 24 hours sampled on March 29 and 30, 2021. We note that conditions prevented collection of multiple samples during the winter baseflow period at Yori Drain and North

Truckee Drain, so loadings at those stations are estimated as based on one composite sample and one single grab sample, respectively.

**Table 5-11 Daily Load Measured from Baseflow in Steamboat Creek and Boynton Slough, March 29-30, 2021**

<b>Daily Loads: March 29-30, 2021</b>			
Monitoring Station	Constituents		
	Total-N	Total-P	TDS
<i>Tributaries</i>	<i>(lbs/day)</i>		
Steamboat Creek at Clean Water Way	184	34	64,069
<i>Yori Drain at Steamboat Creek</i>	83	3.4	8,587
<i>Boynton Slough at Steamboat Creek</i>	43	5.3	8,180
North Truckee Drain at Big Fish Drive	10	1.1	5,043
<b>Total Steamboat Creek at Clean Water Way</b>	<b>194</b>	<b>35</b>	<b>69113</b>
<b>Load Allocations, TMDL Truckee River at Lockwood</b>	<b>500</b>	<b>80</b>	<b>780,360</b>
<b>Daily Load, Percent of Load Allocation under TMDL</b>	<b>39%</b>	<b>44%</b>	<b>9%</b>

Notes:

*Load Allocation for the TMDLs represent the total expected or allowable load from non-point and background sources*  
*TMDLs for Total-N, Total-P, and TDS established in 1994 (NDEP, 1994)*  
*Totals and percent of daily load are using Steamboat Creek at Clean Water Way only*  
*North Truckee Drain streamflow was too low for automated multi-sampling, one grab sample collected*  
*Yori Drain auto sampler had a power malfunction and did not collect all 24 hourly samples, one composite sample delivered to laboratory*  
*Both North Truckee Drain and Yori Drain loads calculated using the single sample concentrations and USGS flow and recorded data respectively*  
*Both North Truckee Drain and Yori Drain loads are considered estimates*

As discussed above in Sections 5.6.1.1 and 5.6.1.2, summer and winter baseflow yields suggest Boynton Slough and Yori drain may be a key source of nutrients to Steamboat Creek and the Truckee River compared to the rest of the Steamboat Creek watershed.

## 6 FY2021 SUMMARY

This section summarizes the FY2021 monitoring year results for stormwater and baseflow samples collected within the Truckee Meadows MS4 Permit Area. Data are representative of the storm characteristics and baseflow conditions sampled and may not be characteristic of other periods that were not sampled.

As measured at the Reno-Tahoe International Airport, total annual precipitation in the Truckee Meadows in FY2021 was 2.99 inches, the third driest year on record for July through June (NWS 2021). The lack of precipitation generated by storms and the amount of precipitation that fell as snow in FY2021 precluded the ability to meet the stormwater sampling goal of 2 samples per station.

Total-N concentrations in stormwater runoff exceeded established water quality standards (WQS) where WQS have been established. In addition, six of seven Total-N concentrations in tributary baseflow exceeded WQS across all locations sampled and where WQS exist. The highest measured stormwater runoff concentrations were from the Arlington urban stormwater outfall (25 mg/L). The highest measured baseflow concentrations were measured in Boynton Slough (3.2 mg/L), a large, urban tributary to Steamboat Creek.

Two tributaries are analyzed for nitrate concentrations in stormwater runoff and baseflow (Chalk Creek and Alum Creek). Both tributaries feed the Truckee River above Idlewild Park. Samples collected from both Alum Creek and Chalk Creek were measured below the established water quality standards (WQS) established for the Truckee River (S.V.  $\leq$  2.0 mg/L). The concentrations ranged from not detected above the laboratory reporting limits to 1.4 mg/L.

TKN is a measure of the total concentration of organic nitrogen and ammonia. Although we do not directly analyze for TKN in the SAP, the results are reported from laboratory samples in order to calculate Total-N. We include the TKN results in this report and results ranged from 0.91 mg/L to 25 mg/L. Baseflow results from the tributary stations ranged from not detected above the laboratory reporting limits to 1.70 mg/L.

Total-P concentrations ranged between 0.13 mg/L and 2.0 mg/L. The highest measured Total-P concentrations in stormwater runoff were from the Arlington Street urban outfall. Total-P concentrations in baseflow ranged between 0.05 mg/L to 0.42mg/L. Currently, WQS for Total-P for waters monitored under this program are expressed as annual-

averages. Results presented in this report are single values and comparisons should be used with caution.

Measured TDS concentrations in stormwater runoff exceeded single value requirements to maintain existing higher water quality set by the NDEP in 16 of 22 of the samples collected in FY2021. TDS concentrations in baseflow exceeded the same requirement in samples from North Truckee Drain, Chalk Creek, Alum Creek, Yori Drain, and all three stations on Steamboat Creek. Additional water quality standards for TDS are measured in annual average and presented for reference only. In some cases, TDS concentrations in baseflow exceeded the single value requirement concentrations in stormwater runoff, suggesting water quality impairment may originate from irrigation returns, illicit discharges, or other sources that occur during non-precipitation runoff.

Limited storm event water samples were collected and analyzed for *E.coli* in FY2021 due to sampling holding time constraints and the limited runoff events, but water samples were collected at nearly all stations during baseflow conditions. Stormwater runoff samples were successfully collected and analyzed from only Alum Creek and Steamboat Creek at Rhodes Road, and counts from both samples exceeded established WQS. All baseflow water samples collected in FY2021 met WQS for *E. coli*.

Turbidity, Dissolved Oxygen (DO) and pH exceeded established WQS in some instances. All DO measurements were within an acceptable range or met WQS except those in summer baseflow measured in North Truckee Drain at Big Fish Drive. Only two pH measurements were below the WQS range: one from North Truckee Drain at Big Fish Drive and one from the Mary Wahl Drain urban stormwater outfall. All stormwater samples and most (except for 5) baseflow samples exceeded the WQS for turbidity ( $S.V. \leq 10$  NTU).

Storm loads were generally small from the urban stormwater outfall samples collected in FY2021. This is due both to the smaller storms that were sampled, as well as the relatively small contributing watershed areas. For example, storm loads from the November 18, 2020 sampled at Arlington and Mary Wahl compared to the Truckee River TMDL were 7% of the Total-N TMDL, 5% of the Total-P TMDL, and 0.2% of the TDS TMDL. This storm did not last for 24 hours and the storm load is not an estimate of daily load. Loadings from urban stormwater outfalls during the December 2020 and January 2021 storms were even smaller than the November 2020 storm.

Constituent 'yields' are normalized based on watershed area and provide an indication of constituent production and delivery rates from a given area. Yields are calculated



and reported in terms of pounds per square mile of watershed area (lbs./sq. mile). For example, although total loads were higher at Mary Wahl Drain during the November storm, Arlington had higher yields, indicating that the contributing watershed area to the Arlington stormwater outfall is producing more nutrients, fine sediment, and dissolved solids relative to other portions of the watershed. In both the December 2020 and January 2021 storms, Fisherman's Park delivered the highest constituent loads, yet the Oxbow Park contributing watershed areas delivered the highest yields when normalized for watershed areas.

Nested baseflow sampling in the Steamboat Creek watershed showed that the Yori Drain sub-watershed delivered higher nutrient and TDS yields than either Boynton Slough or the rest of the upper Steamboat Creek watershed in both summer and winter baseflow.

## 7 RECOMMENDATIONS

Below we outline several recommendations based on the conclusions of the FY2021 annual report and separately authorized six-year water-quality trends analysis completed for the period 2015-2021.

- 1) We are using a nested monitoring approach to identify source areas of stormwater and non-stormwater pollution. This approach began in the Steamboat Creek Watershed with the instrumentation of Boynton Slough and Yori Drain in FY2017. Based on the concentration and yields analysis, this strategy would also benefit targeted sampling and analysis of Yori Drain, and the Arlington urban outfall watersheds. Additional upstream sampling locations would need to be identified and instrumented. Separately, this could also be targeted as part of a Special Study.
- 2) The four urban stormwater outfalls and four tributaries are operated using ISCO auto-samplers. Some of these systems have been deployed in the field for over six years. We have replaced some faulty instruments over the past few years on an as needed basis. Several locations are nearing the end of the expected life span for the instruments and beginning to experience more errors while in operation. It is our suggestion that we do an audit of the field instrumentation to upgrade and replace the older machines and instruments. Also, recent advancements in instrumentation and telemetry can offer unique opportunities to allow for collection of instantaneous data as well as increase the efficiency of the sample collection process.

## 8 LIMITATIONS

This report was prepared in general accordance with the accepted standard of practice in surface-water hydrology in Nevada for projects of similar scale at the time the investigations were performed. No other warranties, expressed or implied, are made. As is customary, we note that readers should recognize that the interpretation and evaluation of factors affecting the hydrologic context of any site is a difficult and inexact art. Judgments leading to conclusions and recommendations are generally made with an incomplete knowledge of the conditions present. More extensive or extended studies can reduce the inherent uncertainties associated with such studies.

Findings, interpretations and recommendations contained in this report are intended for the exclusive use of The Truckee Meadows Stormwater Permit Coordinating Committee, NDOT, and Western Regional Water Commission, under the conditions presently prevailing except where noted otherwise. This report and its contents have been developed solely to evaluate water quality at discrete locations in the Truckee Meadows for the sole purposes and in the context described above. Data, interpretations and analyses developed for this report may not be directly applicable to other uses. Balance Hydrologics should be consulted prior to applying the contents of this report to stormwater BMP design, drainage or flooding management or for any other purposes not specifically cited in this report.

Finally, we ask that readers who have additional pertinent information, who observed changed conditions, or who may note material errors should contact us with their findings at the earliest possible date, so that timely changes can be incorporated if deemed necessary.

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## **APPENDICES**



**APPENDIX A**

**FY2021 Station Observer Logs**

**Station Observer Log:  
Arlington Street (H-19)**

Site Conditions			Pipe or Streamflow				Water Quality Observations							Remarks	
Date/Time (observer time)	Observer	Stage	Hydrograph	Flow	Streamflow Source	Estimated Accuracy	Water Temperature	Field Specific Conductance	Adjusted Specific Conductance	Dissolved Oxygen	Dissolved Oxygen	pH	Turbidity	Samples collected?	Remarks
		(feet)	(R/F/S/B)	(cfs)	(M, R, E)	(e/g/f/p)	(oC)	(µmhos/cm)	(at 25 oC)	(%)	(mg/L)		(NTU)	(yes/no)	
2020-07-21 17:00	bt	dry	--	--	--	--	--	--	--	--	--	--	--	no	Iced ISCO; set for 0.15 inches of precipitation, 205.84 cf per sample starting >0.15; culvert is dry with some debris in covering the intake
2020-07-22 14:15	bt	dry	--	--	--	--	--	--	--	--	--	--	--	no	Re-iced ISCO; culvert still dry with debris over intake; ran diagnostics on ISCO and changed desiccant; set ISCO to sample 1023 cf/sample >0.3
2020-07-22 17:15	bt	0.19	S	--	--	--	--	--	--	--	--	--	--	yes	Some flow in culvert; some of the debris has been washed out but not all; flow and velocity not reading due to debris; grab sample collected manually with ISCO; discharge in culvert is brown and dirty
2020-07-22 17:40	bt	0.19	S	--	--	--	18.3	415	475	40	3.23	6.04	>1,100	yes	Processed the grab sample; intake is still under debris and flow is not reading out; had to dilute the sample 3 times (sample x 4) to get desktop turbidity to read; replaced ISCO bottle and capped all bottles
2020-11-17 11:45	bt	dry	--	--	--	--	--	--	--	--	--	--	--	no	Culvert dry; small amount of debris visible in the culvert; river is low; set ISCO to sample for 0.2 inches of precipitation every 487 cf starting at >0.2ft.
2020-11-18 11:57	bt, jj, np	0.15	F	0.16	R	f	--	--	--	--	--	--	140.5, 99.94, 116.4, 87.12	yes	23 samples collected; H-19 (1) T 6.1°C, C 210, SC 327, DO 90% 9.67 mg/L, pH 6.78; H-19 (2) T 8.3°C, 118 C, SC 173, DO 89% 9.14 mg/L, pH 7.02; H-19 (3) T 9.7°C, C 120, SC 170, DO 84% 8.34 mg/L, pH 7.06; H-19 (4) T 10.0°C, C 120, SC 169, DO 84% 8.28 mg/L, pH 7.05; H-19 (5) E.coli sample from 11:55 bottle; storm was two waves--one overnight early morning and second starting at 10:30
2020-12-12 14:56	bt	dry	--	--	--	--	--	--	--	--	--	--	--	no	No flow in culvert; set ISCO to sample 0.25 inches of rain to slow down sample collection from previous sample runs; previous samples have been collected too quickly
2020-12-14 10:20	bt	dry	--	--	--	--	--	--	--	--	--	--	--	no	Did not sample; capped and closed ISCO; stage data hovered around sample trigger level
2021-01-04 9:00	bt	dry	--	--	--	--	--	--	--	--	--	--	--	no	Culvert is dry; set ISCO to sample for 0.25 inches of rain-750 cf/sample starting >0.20ft.
2021-01-05 11:00	bt	dry	--	--	--	--	--	--	--	--	--	--	179.2, 144.1, 106.7	yes	Culvert is dry; 9 samples collected from a flashy hydrograph with a quick peak and no lengthy rising limb; H-19 (1) T 1.1°C, C 184, SC 339, DO 99% 12.12 mg/L, pH 7.85; H-19 (3) T 1.4°C, C 102, SC 186, DO 96% 11.64 mg/L, pH 7.69; H-19 (4) T 1.4°C, C 90, SC 164, DO 90% 10.90 mg/L, pH 7.52

Observer Key: (bt) is Ben Trustman, (jj) is Jack Jacquet, (np) is Noelle Patterson

Stage: Water level observed on staff plate,

Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), or baseflow (B)

Streamflow Source: measured by a hydrologist (M), obtained from an existing rating curve or gaging station [R], or estimated E

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation  $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Turbidity values are reported from the sample using a desktop turbidimeter and do not reflect laboratory analysis and results

**Station Observer Log:  
Mary Wahl Drain (SDOE 008936)**

Site Conditions			Pipe or Streamflow				Water Quality Observations						Remarks		
Date/Time (observer time)	Observer	Stage	Hydrograph	Flow	Streamflow Source	Estimated Accuracy	Water Temperature	Field Specific Conductance	Adjusted Specific Conductance	Dissolved Oxygen	Dissolved Oxygen	pH	Turbidity	Samples collected?	Remarks
		(feet)	(R/F/S/B)	(cfs)	(M, R, E)	(e/g/f/p)	(oC)	(µmhos/cm)	(at 25 oC)	(%)	(mg/L)		(NTU)	(yes/no)	
2020-07-22 15:30	bt	--	--	--	--	--	--	--	--	--	--	--	--	no	Ran diagnostics and changed desiccant; ISCO loaded with 24 bottles and capped
2020-11-17 12:43	bt	--	--	--	--	--	--	--	--	--	--	--	--	no	Battery check ok and charged; unable to visually inspect intake; set to sample 5100 cf flow based >0.2ft for 0.2 inches of rain
2020-11-18 12:50	bt, jj	0.43	F	1.90	R	f	--	--	--	--	--	--	103.3, 229.2, 262.7, 191.5	yes	8 samples collected; bottom of falling limb; first wave over night early morning with 3 samples collected; second wave started at 10:30 samples collected starting at 11:14; last sample was grab sample at arrival-SDOE 008936 (5) was E.coli sample from grab sample bottle at 13:00; (1) T 7.3°C, C 392, SC 592, DO 69% 7.33 mg/l, pH 7.50; SDOE008936 (2) T 9.5°C, C 186, SC 264, DO 82% 8.10 mg/l, pH 7.63; SDOE008936 (3) T 10.5°C, C 145, SC 200, DO 81% 8.00 mg/l, pH 7.28; SDOE008936 (4) T 12.3°C, C 136, SC 180, DO 85% 7.95 mg/l, pH 7.22
2020-12-12 15:49	bt	dry	--	--	--	--	--	--	--	--	--	--	--	no	Intake is dry; no flow in culvert but some pooled water; sediment under intake; intake is clear(visible)with some debris on arm; set to sample flow paced 4237 cf/sample starting at greater than 0.20 ft.
2020-12-14 11:40	bt	--	--	--	--	--	--	--	--	--	--	--	156.7, 220.3, 109.5	yes	6 samples collected; bottom of falling limb; short hydrograph on evening of 12/13/20: Only processed rising limb, peak and falling limb--rising limb was very fast and no clear first flush: SDOE 008936(2) T 1.6°C, C 184, SC 334, DO 84% 10.83 mg/l, pH 7.62; SDOE008936 (3) T 1.8°C, C 184, SC 331, DO 84% 10.06 mg/l, pH 7.57; SDOE008936 (4) T 1.9°C, C 113, SC 202, DO 82% 9.75 mg/l, pH 7.53

Observer Key: (bt) is Ben Trustman, (jj) is Jack Jacquet

Stage: Water level observed on staff plate,

Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), baseflow (B), or backwater (BW)

Streamflow Source: measured by a hydrologist (M), obtained from an existing rating curve or gaging station [R], or estimated E

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation  $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Turbidity values are reported from the sample using a desktop turbidimeter and do not reflect laboratory analysis and results

**Station Observer Log:  
Fishermans Park II (D-16)**

Site Conditions			Pipe or Streamflow				Water Quality Observations						Remarks		
Date/Time (observer time)	Observer	Stage	Hydrograph	Flow	Streamflow Source	Estimated Accuracy	Water Temperature	Field Specific Conductance	Adjusted Specific Conductance	Dissolved Oxygen	Dissolved Oxygen	pH	Turbidity	Samples collected?	Remarks
		(feet)	(R/F/S/B)	(cfs)	(M, R, E)	(e/g/f/p)	(oC)	(µmhos/cm)	(at 25 oC)	(%)	(mg/L)		(NTU)	(yes/no)	
2020-07-22 14:50	bt	--	trickle	--	--	--	--	--	--	--	--	--	--	no	Filled ISCO with bottles and capped; ran diagnostics and changed desiccant; steady trickle of water in outfall
2020-11-17 12:12	bt	--	trickle	--	--	--	--	--	--	--	--	--	--	no	ISCO would not turn on; ISCO chirp sound was audible but no display; changed battery and no response from ISCO at all
2020-12-12 15:24	bt	0.02	trickle	--	--	--	--	--	--	--	--	--	--	no	ISCO worked when hooked up to new battery and not hooked up to solar panel; reprogrammed the ISCO as it was erased; set to sample flow paced 3409 cf/sample >0.15ft; light flow
2020-12-14 10:47	bt	0.02	trickle	--	--	--	--	See Remarks	--	--	--	--	289.2, 227.5, 127.9, 76.49	yes	14 bottles collected; low flow at outfall and pavement is dry; D-16 (1) T 1.5°C, C 378, SC 686, DO 77% 9.32 mg/l, pH 7.52; D-16 (2) T 1.7°C, C 148, SC 267, DO 86% 10.25 mg/l, pH 7.72; D-16 (3) T 1.9°C, C 112, SC 201, DO 90% 10.73 mg/l, pH 7.72; D-16 (4) T 2.3°C, C 187, SC 331, DO 86% 10.2 mg/l, pH 7.62
2021-01-04 9:30	bt	dry	--	--	--	--	--	--	--	--	--	--	--	no	No flow in outfall; set to sample for 0.22 inches of rain; 5128 cf/sample starting >0.15ft.
2021-01-05 12:00	bt	dry	trickle	--	--	--	--	See Remarks	--	--	--	--	250.9, 291.1, 279.5	yes	6 bottles collected; pavement is dry; quick peak and no rising limb samples; D-16 (1) T 1.8°C, C 801, SC 1436, DO 93% 11.10 mg/l, pH 7.77; D-16 (3) T 1.8°C, C 428, SC 768, DO 89% 10.69 mg/l, pH 7.91; D-16 (4) T 2.1°C, C 402, SC 714, DO 90% 10.71 mg/l, pH 7.92

Observer Key: (bt) is Ben Trustman

Stage: Water level observed on staff plate,

Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), or baseflow (B)

Streamflow Source: measured by a hydrologist (M), obtained from an existing rating curve or gaging station [R], or estimated E

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation  $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Turbidity values are reported from the sample using a desktop turbidimeter and do not reflect laboratory analysis and results

**Station Observer Log:  
Oxbow Nature Park (C-24)**

Site Conditions		Pipe or Streamflow					Water Quality Observations							Remarks	
Date/Time (observer time)	Observer	Stage (feet)	Hydrograph (R/F/S/B)	Flow (cfs)	Streamflow Source (M, R, E)	Estimated Accuracy (e/g/f/p)	Water Temperature (oC)	Field Specific Conductance (µmhos/cm)	Adjusted Specific Conductance (at 25 oC)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	pH	Turbidity (NTU)	Samples collected? (yes/no)	Remarks
2020-07-21 16:42	bt	0.10	S	--	--	--	--	--	--	--	--	--	--	no	Thunderstorm activity forecast for next few days; iced and set ISCO to sample 950cf/sample >0.175 ft. Low flow in culvert; intake clear of debris
2020-07-22 13:40	bt	0.10	S	--	--	--	--	--	--	--	--	--	--	no	Two bottles collected at 01:00 and 08:40--not stormwater samples--likely nuisance flow; replaced bottles and re-iced the ISCO; replaced desiccant on ISCO; set ISCO to sample for 0.25 inches of rain 1600 cf/sample >0.20 ft.; ISCO reading 1.71ft/s velocity but level too low for flow calculation
2020-11-17 11:22	bt	0.04	S	--	--	--	--	--	--	--	--	--	--	no	Forecast is for 0.2 inches of rain; set ISCO for flow paced sampling 1030 cf/sample >0.15 ft
2020-11-18 11:40	bt	--	--	--	--	--	--	--	--	--	--	--	--	no	Power failure with ISCO, unable to operate pump; battery was 11.2 volts and was 12.8V upon install on 11/17/20; battery needs replacement
2020-12-12 14:30	bt	0.02	S	--	--	--	--	--	--	--	--	--	--	no	Forecast is 0.15 inches of precipitation; set ISCO to sample flow paced 721 cf/sample >0.20 ft; visual inspection shows very low steady flow in outfall
2020-12-14 9:10	bt	0.04	S	--	--	--	--	See Remarks	--	--	--	137.0, 159.8, 88.72, 54.94	yes	18 bottles collected; small hydrograph that lasted roughly 2.5 hours; 1 inch of snow at site upon arrival; C-24(1) T 1.4°C, C 102, SC 185 DO 83% 9.77mg/L, pH 8.51; C-24(2) T 1.7°C, C 65, SC 117, DO 89% 10.69mg/L, pH 8.01; C-24(3) T 1.6°C, C 48, SC 88, DO 89% 10.73mg/L, pH 7.80; C-24(4) T 1.4°C, C 35, SC 64, DO 92% 11.09mg/L, pH 7.73	
2021-01-04 8:25	bt	0.11	S	0.10	R	g	--	--	--	--	--	--	--	no	Forecast of 0.2 to 0.25 inches of precipitation ; set ISCO to sample 1158 cf/sample starting >0.175ft; visual inspection of intake is clear
2021-01-05 9:00	bt	--	--	--	--	--	--	See Remarks	--	--	--	162.3, 98.3, 147.8, 96.08	yes	17 bottles collected; small first flush (C-24 (1)) with a second hydrograph considered second flush (C-24 (2)) and finally a bigger hydrograph with a fast peak and falling limb (C-24 (3 and 4)); C-24(1) T 1.1°C, C 362, SC 666 DO 87% 10.57 mg/L, pH 8.41; C-24(2) T 2.3°C, C 176, SC 312, DO 93% 10.89mg/L, pH 8.34; C-24(3) T 2.7°C, C 144, SC 251, DO 96% 11.19mg/L, pH 8.21; C-24(4) T 2.7°C, C 68, SC 119, DO 100% 11.61mg/L, pH 8.21	

Observer Key: (bt) is Ben Trustman

Stage: Water level observed on staff plate,

Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), or baseflow (B)

Streamflow Source: measured by a hydrologist (M), obtained from an existing rating curve or gaging station [R], or estimated E

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation  $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Turbidity values are reported from the sample using a desktop turbidimeter and do not reflect laboratory analysis and results

**Station Observer Log:  
Thomas Creek at South Meadows Pkwy (TC@SMP)**

Site Conditions				Streamflow			Water Quality Observations							Remarks		
Date/Time (observer time)	Observer	Old Stage (feet)	New Stage (feet)	Hydrograph (R/F/S/B)	Streamflow (cfs)	Streamflow Source (M, R)	Estimated Accuracy (e/g/f/p)	Water Temperature (oC)	Field Specific Conductance (µmhos/cm)	Adjusted Specific Conductance (at 25 oC)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	pH	Turbidity (NTU)	Samples collected? (yes/no)	Remarks
2020-07-21 17:24	bt		3.89	B	0.75	R	--	--	--	--	--	--	--	--	no	Rained a few minutes before arrival; some puddling in street but no indication of runoff; water clear and at baseflow level; staff has one inch of algae build up above the water line
2020-07-22 16:45	bt		3.87	B	0.52	R	--	--	--	--	--	--	--	--	no	Radar indicated a cell near monitoring location; heavy rain at Moana Ln; no rain at monitoring location at arrival; no change in gage; water clear
2020-08-19 13:09	bt		3.90	B	0.76	M	g/f	20.9	121	131	94	7.4	7.77	--	no	Lots of vegetation and grasses in channel; banks are overgrown; grasses upstream of gage are holding foam; water is clear
2020-09-04 9:52	bt		3.95	B	0.80	M	f	16.4	107	128	105	9.0	7.85	20.55	yes	Ambient water quality sample collected at 10:10; lots of vegetation around and in channel; water is slightly brown; stage dropped during measurement
2020-11-18 10:31	bt, jj ,np		4.46	R	2.70	M	g/f	5.2	83	133	93	10.3	7.30	26.51	yes	Water turbid; leaves and debris in the stream bunched at gage; removed at arrival possibly dropping stage; sample collected at 10:30
2021-01-04 11:22	bt		4.25	S	--	--	--	16.6	52	62	100	11.7	8.49	--	no	Checking stage before storm; channel clear and water clear
2021-01-07 12:30	pr		4.22	B	1.23	M	g/f	-0.8	55	107	101	13.0	6.93	--	no	Ice impacted staff, but not affecting flow; Culvert clear u/s. water is clear, cold, ice built up along edges
2021-02-11 10:54	bt		4.26	B	1.77	M	g	1.7	65	118	101	12.1	5.65	--	no	Water clear; no debris in channel; vegetation is dead; pH verified with manual strip
2021-03-29 12:30	bt		4.78	B	2.13	M	g	7.9	76	113	104	10.5	7.63	8.23	yes	Water slightly brown; some debris upstream of gage on the surface and easily removed to let it flow downstream; elevated flow compared to summer baseflow; sample collected at 12:55
2021-04-23 11:15	bt,de		4.40	B	1.59	M	g	10.2	75	104	116	11.4	7.96	--	no	Water clear; no debris in channel ; vegetation is still dry; downloaded logger
2021-05-15 16:03	bt, pr		4.30	B	1.18	R	--	--	--	--	--	--	--	--	no	Some lawn clippings in the channel; no evidence of storm water run-off; water clear
2021-06-16 11:15	bt		4.20	S	0.77	M	g	14.5	96	120	89	7.8	7.82	--	no	Water is brown; vegetation is full grown; lots of marmots around the gage area
2021-06-24 13:17	bt		3.59	S	--	--	--	21.3	152	164	57	4.7	7.84	--	no	Water very low with est. < 0.01 cfs; water clear
2021-06-24 15:30	bt		3.49	B	no flow	--	--	--	--	--	--	--	--	--	no	No flow; gage is shallow pool; high point just downstream of gage is where flow stops

Observer Key: (bt) is Ben Trustman, (np) is Noelle Patterson, (jj) is Jack Jacquet, (pr) is Paxton Ridgway, (de) is Devon Eckberg

Stage: Water level observed on staff plate,

Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), or baseflow (B)

Streamflow Source: measured by a hydrologist (M), obtained from an existing rating curve or gaging station [R]

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation  $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Turbidity values are reported from the sample using a desktop turbidimeter and do not reflect laboratory analysis and results

**Station Observer Log:  
Alum Creek at Truckee River (AC@TR)**

Site Conditions			Streamflow				Water Quality Observations							Remarks	
Date/Time (observer time)	Observer	Stage	Hydrograph	Streamflow	Streamflow Source	Estimated Accuracy	Water Temperature	Field Specific Conductance	Adjusted Specific Conductance	Dissolved Oxygen	Dissolved Oxygen	pH	Turbidity	Samples collected?	
		(feet)	(R/F/S/B)	(cfs)	(M, R)	(e/g/f/p)	(oC)	( $\mu$ mhos/cm)	(at 25 oC)	(%)	(mg/L)		(NTU)	(yes/no)	
2020-07-22 16:10	bt, jj	--	B	--	--	--	--	--	--	--	--	--	--	no	Rain starting while at the location; no change in stage for over 45 minutes and rain subsided; only wetted surface-no runoff
2020-09-04 8:41	bt	0.37	B	0.69	M	g/f	18.00	258.00	298.00	102.00	8.43	8.00	22.24	yes	Ambient sample collected at 9:05; Baseflow conditions; water clear; lots of fine sediment on the channel bed
2020-11-18 7:33	jj, np	0.48	R	0.53	M	f	5.30	310.00	497.00	72.00	--	7.48	22.80	yes	Stage previous night before rain was less than 0.2; water color is red/brown; lots of leaves in channel
2021-01-04 10:30	bt	0.22	S	0.05	E	p	--	--	--	--	--	--	--	no	Leaf dam at top of gaging pool; removed the dam which was also created by rocks placed in the channel; lots of leaf debris upstream of the gage pool
2021-01-04 17:00	jj,np	0.46	F	0.49	M	f	3.20	313.80	537.70	91.00	10.35	7.53	81.33	yes	Light showers earlier in the day with a heavy burst at 16:00; water turbid with significant leaf debris; sample collected at 17:02
2021-03-30 13:00	bt, dm	dry	--	--	--	--	--	--	--	--	--	--	--	no	Creek was dry; no sample collected

Observer Key: (bt) is Ben Trustman, (np) is Noelle Patterson, (jj) is Jack Jacquet, (np) is Noelle Patterson; (dm) is Daniel Moss -City of Reno

Stage: Water level observed on staff plate,

Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), or baseflow (B)

Streamflow Source: measured by a hydrologist (M), obtained from an existing rating curve or gaging station [R]

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation  $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Turbidity values are reported from the sample using a desktop turbidimeter and do not reflect laboratory analysis and results

**Station Observer Log:**  
**Alum Creek at Mayberry Drive (AC@MAB)**

Alum Creek at Mayberry Drive

Site Conditions				Streamflow			Water Quality Observations							Remarks	
Date/Time (observer time)	Observer	Stage (feet)	Hydrograph (R/F/S/B)	Streamflow (cfs)	Streamflow Source (M, R)	Estimated Accuracy (e/g/f/p)	Water Temperature (oC)	Field Specific Conductance (umhos/cm)	Adjusted Specific Conductance (at 25 oC)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	pH	Turbidity (NTU)	Samples collected? (yes/no)	Remarks
2020-08-19 14:30	bt	4.16	S	0.52	M	g	24.2	338	344	88	6.45	7.88	--	no	Water clear; possible ditch influenced flows; vegetation is green; lots of crawdads in the gage pool
2021-01-07 16:05	pr	3.93	B	2 gpm	E	P	0.30	513	979	89	11.1	7.57	--	no	Ice around edges and impacted staff - too low to measure flow - only a truckle, estimated 2 gpm.
2021-02-11 14:04	bt	4.05	B	0.08	M	g	6.2	598	937	94	10.0	6.03	--	no	Water clear; some leaf debris in the channel; looks like there has not been a flushing high flow but no leaf dam; pH was verified by manual strip
2021-04-23 14:36	bt,de	3.96	B	0.02	M	g	15.2	903	1111	65	5.7	7.58		no	Extremely low flow, water clear, a lot of leaf debris on channel bed, downloaded logger and baro logger
2021-06-16 9:30	bt	4.15	S	0.34	M	f	16.8	445	527	85	7.1	7.79	--	no	Water clear; lots of leaf debris and soft fine sediment on channel bed
2021-07-23 13:40	de	4.14	S	0.35	M	f	25.0	507	507	92	6.5	7.65	--	no	Water brown and cloudy; banks dry and grasses are drying out

Observer Key: (bt) is Ben Trustman, (de) is Devon Eckberg, (pr) is Paxton Ridgway

Stage: Water level observed on staff plate,

Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), or baseflow (B)

Streamflow Source: measured by a hydrologist (M), obtained from an existing rating curve or gaging station [R]

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation  $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Turbidity values are reported from the sample using a desktop turbidimeter and do not reflect laboratory analysis and results



**Station Observer Log:  
Chalk Creek at Chalk Bluff (CC@CB)**

Site Conditions		Streamflow				Water Quality Observations							Remarks	
Date/Time <small>(observer time)</small>	Observer	Hydrograph <small>(R/F/S/B)</small>	Streamflow <small>(cfs)</small>	Streamflow Source <small>(M, E)</small>	Estimated Accuracy <small>(e/g/f/p)</small>	Water Temperature <small>(oC)</small>	Field Specific Conductance <small>(µmhos/cm)</small>	Adjusted Specific Conductance <small>(at 25 oC)</small>	Dissolved Oxygen <small>(%)</small>	Dissolved Oxygen <small>(mg/L)</small>	pH	Turbidity <small>(NTU)</small>	Samples collected? <small>(yes/no)</small>	Remarks
2020-09-04 8:05	bt	B	0.50	M	f	14.5	2109	2638	106	9.4	8.11	7.05	yes	Ambient sample collected at 8:20; duplicate sample labeled CC@W4 8:40; lots of vegetation growth near channel; beaver dam still intact; water clear
2020-11-18 9:05	jj,np	R	8.63	M	f/p	7.1	1339	2033	83	8.6	7.73	38.92	yes	Water is turbid; lots of foam; flow was increasing during measurement; sample collected at 9:05
2021-01-04 18:00	jj,np	R	2.60	M	f	5.2	1441	2319	111	12.0	7.82	98.88	yes	Light showers earlier in day with heavy burst at 16:00; water turbid and foamy; sample collected at 18:06
2021-03-30 12:35	bt,dm	S	0.53	M	g/f	7.6	1800	2694	129	13.6	8.36	5.88	yes	Beaver dam is intact; low water flow in pool and lots of sediment; water clear; vegetation is dead; sample collected at 12:35

Observer Key: (bt) is Ben Trustman, (np) is Noelle Patterson, (jj) is Jack Jacquet; (dm) is Daniel Moss

Stage: Water level observed on staff plate,

Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), or baseflow (B)

Streamflow Source: measured by a hydrologist (M), obtained from an existing rating curve or weir equation [E]; V-notch weir equation used:  $Q = 3.33LH^{1.5}$

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation  $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Turbidity values are reported from the sample using a desktop turbidimeter and do not reflect laboratory analysis and results

Station Observer Log:  
Evans Creek@Kietzke Lane (EC@KL)

Site Conditions				Streamflow			Water Quality Observations							Remarks	
Date/Time (observer time)	Observer	Stage	Hydrograph	Streamflow	Streamflow Source	Estimated Accuracy	Water Temperature	Field Specific Conductance	Adjusted Specific Conductance	Dissolved Oxygen	Dissolved Oxygen	pH	Turbidity	Samples collected?	Remarks
		(feet)	(R/F/S/B)	(cfs)	(M, E)	(e/g/f/p)	(oC)	(µmhos/cm)	(at 25 oC)	(%)	(mg/L)		(NTU)	(yes/no)	
2020-08-19 11:37	bt	4.15	S	1.78	M	g	19.8	196	218	83	6.6	7.46	--	no	Water clear; grasses are green; streamflow is possibly influenced by ditch discharge
2020-09-04 10:42	bt	4.10	S	1.18	M	g	17.8	204	236	78	6.7	7.46	16.81	yes	Ambient sample collected at 11:15; water clear; lots of crayfish in gage pool; fine sediment in gage pool
2021-01-04 11:10	bt	4.07	S	--	--	--	--	--	--	--	--	--	--	no	Water clear; some plant debris in the channel upstream but not affecting flow; not raining and ground surfaces are dry; checking stage before storm
2021-01-07 14:35	pr	4.07	B	0.14	M	f	5.7	320	508	118	12.8	7.28	--	no	Blue skies, no wind, no run off for some time; low flow has exposed leafy muck along edges of channel; bed is highly variable, rip rap to muck to rip rap again = flows sporadic and depths tricky at low stage
2021-02-01 12:57	bt	4.08	B	--	--	--	8.3	343	503	96	9.8	7.98	--	no	Stage check before storm; storm is forecast for 2/2/21 with 0.15 inches of rain; abundant snow in Reno area should create more runoff; patchy snow on banks; some minor debris downstream of gage
2021-02-11 11:22	bt	4.02	B	0.28	M	g/f	7.4	335	505	90	9.3	6.31	--	no	Water clear; low flow; little trash downstream of the gage
2021-03-29 13:30	bt	3.96	B	0.13	M	g/f	12.5	375	495	134	12.3	8.19	6.63	yes	Water clear; lowest observed flow; dark buildup on staff plate at water level suggesting it has been at this level for an extended period of time; sample collected at 13:50
2021-04-23 13:04	bt, de	4.05	B	0.52	M	g/f	16.1	246	297	109	9.5	8.02	--	no	Water clear; grasses starting to grow; vegetation is starting to bud and leaf
2021-05-15 15:17	bt,pr	4.25	R	2.25	M	g/f	13.4	146	187	88	8.0	7.37	20.03	yes	Water had foamy bubbles on surface; water was brown tinted; storm water runoff from thunderstorm activity in the previous couple of hours; intermittent light rain upon leaving the site
2021-06-16 10:25	bt	4.21	F	1.53	M	f	15.5	150	183	83	7.1	7.91	--	no	Water is clear; some stick and shrub debris upstream of the gage but not affecting flow; vegetation is full and green
2021-06-24 12:59	bt	4.23	S	--	--	--	22.9	178	185	91	6.9	7.79	--	no	Water was brown; stage check in prep for possible thunderstorms
2021-07-23 11:30	de	4.26	S	2.76	M	g	20.2	163	178	65	5.0	7.48	--	no	Water brown and cloudy; banks dry

Observer Key: (bt) is Ben Trustman, (pr) is Paxton Ridgeway, (de) is Devon Eckberg

Stage: Water level observed on staff plate,

Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), or baseflow (B)

Streamflow Source: measured by a hydrologist (M), obtained from an existing rating curve or weir equation [E]; V-notch weir equation used:  $Q =$ ; Rectangular weir equation =  $Q = 3.33LH^{1.5}$

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation  $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Turbidity values are reported from the sample using a desktop turbidimeter and do not reflect laboratory analysis and results

**Station Observer Log:  
Whites Creek at Old Virginia Hwy (WC@OVH)**

Gage operated and maintained by TMWA

Site Conditions			Streamflow				Water Quality Observations						Remarks		
Date/Time (observer time)	Observer	Stage (meters)	Hydrograph (R/F/S/B)	Streamflow (cfs)	Streamflow Source (M, R)	Estimated Accuracy (e/g/f/p)	Water Temperature (oC)	Field Specific Conductance (µmhos/cm)	Adjusted Specific Conductance (at 25 oC)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	pH	Turbidity (NTU)	Samples collected? (yes/no)	Remarks
2020-09-03 11:54	bt	0.43 (TROA)	S	1.6	R	f	16.3	66.0	79.0	113.0	9.8	7.8	6.01	yes	Sample collected at 12:00; water clear; low flow
2020-11-18 6:45	bt	0.76 (TROA)	R	3.9	R	f	6.9	80.6	126.9	93.2	10.1	7.5	124.2	yes	Water brown; elevated flow; starting to rain again; TROA data intermittent and gage height and flow is from 8:29 recorded point; extra sample collected for YSI measurements (11:00)-DO and temperature should be flagged
2021-03-29 12:07	bt	0.47 (TROA)	S	1.9	R	g	5.9	57.0	91.0	116.0	12.5	8.0	2.42	yes	Water very clear; sample collected at 12:15
2021-05-15 16:18	bt,pr	0.55 (TROA)	S	2.4	R	g	11.4	64.6	87.0	112.0	10.6	7.8	--	no	Water clear; no evidence of storm water run-off

Observer Key: (bt) is Ben Trustman, (pr) is Paxton Ridgway

Stage: Water level observed on staff plate, (staff plate is metric at this location)

Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), or baseflow (B)

Streamflow Source: measured by a hydrologist (M), obtained from an existing rating curve or gaging station [R]

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation  $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Turbidity values are reported from the sample using a desktop turbidimeter and do not reflect laboratory analysis and results

**Station Observer Log:**  
**Steamboat Creek at Rhodes Road (SBC@RR)**

Gage operated and maintained by USGS Station #10349300

Site Conditions		Streamflow			Water Quality Observations							Remarks			
Date/Time (observer time)	Observer	Stage	Hydrograph	Streamflow	Streamflow Source	Estimated Accuracy	Water Temperature	Field Specific Conductance	Adjusted Specific Conductance	Dissolved Oxygen	Dissolved Oxygen	pH	Turbidity	Samples collected?	Remarks
		(feet)	(R/F/S/B)	(cfs)	(M, R)	(a/p)	(oC)	(µmhos/cm)	(at 25 oC)	(%)	(mg/L)		(NTU)	(yes/no)	
2020-09-03 11:25	bt	0.15	B	0.1	R	a	18.9	434	491	76	6.3	7.51	15.19	yes	Sample collected at 11:30; very low flow; USGS staff plate is dry; water clear; lots of crayfish
2020-11-18 6:25	bt	1.06	F	16.4	R	a	6.6	233	370	89	9.7	7.62	39.80	yes	Sample collected at 6:30; water brown; elevated flow; extra sample collected for YSI measurements (11:00)-DO and temperature should be flagged
2021-03-29 11:35	bt	0.79	B	7.0	R	a	8.1	173	257	117	11.8	8.32	12.49	yes	Sample collected at 11:45; Labeled a duplicate sample SBC@MTR 11:50; water slightly brown
2021-06-24 15:30	bt	0.18	B	0.2	R	p	--	--	--	--	--	--	--	no	Rained on and off for 1 hour then heavy for 10 minutes and wet ground surface- no change in streamflow

Observer Key: (bt) is Ben Trustman

Stage: Water level observed on staff plate,

Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), or baseflow (B)

Streamflow Estimated Accuracy: Data approved (a) or data preliminary (p)

Streamflow Source: measured by a hydrologist (M), obtained from an existing rating curve or gaging station [R]

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation  $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Turbidity values are reported from the sample using a desktop turbidimeter and do not reflect laboratory analysis and results

**Station Observer Log:  
Steamboat Creek at the Narrows (SBC@NAR)**

Gage operated and maintained by USGS Station #10349849

Site Conditions			Streamflow				Water Quality Observations							Remarks	
Date/Time (observer time)	Observer	Stage (feet)	Hydrograph (R/F/S/B)	Streamflow (cfs)	Streamflow Source (M, R)	Estimated Accuracy (a,/p)	Water Temperature (oC)	Field Specific Conductance (µmhos/cm)	Adjusted Specific Conductance (at 25 oC)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	pH	Turbidity (NTU)	Samples collected? (yes/no)	Remarks
2020-09-03 12:27	bt	-0.35	B	8.5	R	a	27.3	1332	1276	138	9.6	8.44	16.72	yes	Sample collected at 12:35; water clear
2020-11-18 7:05	bt	0.43	R	50.2	R	a	6.0	808	1257	81	8.5	8.07	129.1	yes	Sample collected at 7:10; flow elevated; water brown; break in rain; extra sample collected for YSI measurements (11:00)-DO and temperature should be flagged
2021-03-29 14:20	bt	-0.14	R	16.7	R	a	16.2	748	900	111	9.4	8.32	37.80	yes	Sample collected at 14:20; water brown; several water fowl under the bridge

Observer Key: (bt) is Ben Trustman

Stage: Water level observed on staff plate,

Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), or baseflow (B)

Streamflow Estimated Accuracy: Data approved (a) or data preliminary (p)

Streamflow Source: measured by a hydrologist (M), obtained from an existing rating curve or gaging station [R]

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation  $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Turbidity values are reported from the sample using a desktop turbidimeter and do not reflect laboratory analysis and results

**Station Observer Log:  
Steamboat Creek at Clean Water Way (SBC@CWW)**

Gage operated and maintained by USGS Station #10349980

Site Conditions				Streamflow			Water Quality Observations							Remarks	
Date/Time (observer time)	Observer	Stage (feet)	Hydrograph (R/F/S/B)	Streamflow (cfs)	Streamflow Source (M, R)	Estimated Accuracy (a/p)	Water Temperature (oC)	Field Specific Conductance (µmhos/cm)	Adjusted Specific Conductance (at 25 oC)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	pH	Turbidity (NTU)	Samples collected? (yes/no)	Remarks
2020-08-19 10:14	bt	4.30	S	23.7	R	a	24.2	765	771	78	5.8	8.19	--	no	Ran diagnostics on ISCO; checked distribution arm; NDOT WQ: T 24.2, SC 764, DO 68% 4.87 mg/l, pH 7.76
2020-09-03 9:00	bt	4.40	S	26.7	R	a	20.9	675	732	84	6.6	8.26	10.6 (NDOT)	no	Filled ISCO with bottles and iced; set to sample every hour starting at 12:00; NDOT WQ: T 20.8°C, SC 708, DO 64.6% 4.91 mg/l, pH 7.92
2020-09-04 14:31	bt	4.41	S	27.0	R	a	26.8	726	706	153	10.8	8.61	71.65, 40.33, 29.74, 30.42	yes	24 non-storm samples collected; SBC@CWW (1) T 19.0°C, C 639, SC 723, DO 87% 7.11 mg/l, pH 8.64, SBC@CWW (2) T 18.8°C, C 606, SC 687, DO 90% 7.33 mg/l, pH 8.65, SBC@CWW (3) T 19.4°C, C 630, SC 704, DO 85% 6.87 mg/l, pH 8.49, SBC@CWW (4) T 22.6°C, C 704, SC 737, DO 77% 6.79 mg/l, pH 8.43; NDOT WQ: T 26.4°C, SC 372, DO 82% 6.7mg/l, pH 7.90, NTU 10.76
2020-11-17 13:00	bt	4.40	S	29.2	R	a	11.0	666	908	127	12.3	8.34	--	no	Loaded ISCO with bottles and capped; water brown; unable to connect to NDOT logger
2021-02-01 12:00	bt	4.63	S	42.1	R	a	6.8	528	810	82	8.8	7.91	14.1 (NDOT)	no	Loaded ISCO with ice and will set via logger link; forecast for 0.15 inches of rain and remnant snow should create runoff; hydrograph for the previous 3 days is from snow melt; NDOT WQ: T 6.7°C, SC 766, DO 45% 5.5 mg/L, pH 7.61
2021-02-02 10:56	jj	4.70	S	46.2	R	a	--	--	--	--	--	--	--	no	Capped bottles; storm did not spillover into Truckee Meadows
2021-03-29 10:00	bt	4.51	S	34.6	R	a	9.4	494	703	98	9.8	7.93	20.4 (NODT)	no	Set ISCO to sample every hour 400ml starting at 12:00; Water is brown and low; NDOT WQ T 10.2°C, SC 684, DO 95% 9.2 mg/L, pH 8.03
2021-03-30 15:40	bt	4.50	S	34.0	R	a	14.0	387	491	137	12.3	8.49	39.82, 39.21, 47.43, 31.26	yes	24 non-storm samples collected; SBC@CWW (1) T 4.4°C, C 415, SC 721, DO 101% 11.25 mg/l, pH 8.48, SBC@CWW (2) T 5.5°C, C 415, SC 660, DO 94% 10.17 mg/l, pH 8.56, SBC@CWW (3) T 5.7°C, C 426, SC 671, DO 95% 10.12 mg/l, pH 8.51, SBC@CWW (4) T 6.9°C, C 450, SC 688, DO 89% 9.33 mg/l, pH 8.36 ; NDOT WQ: T 14.8°C, SC 662, DO 134% 11.68 mg/l, pH 8.21, NTU 14.74
2021-04-23 9:15	bt, de	4.38	S	28.2	R	a	13.7	465	593	89	8.0	8.38	11.3 (NDOT)	no	Loaded ISCO with bottles ; water is slightly brown; NDOT WQ T 13.5°C, SC 725, DO 87%, 7.78 mg/L, pH 7.60

Observer Key: (bt) is Ben Trustman, (jj) is Jack Jacquet, (de) is Devon Eckberg

Stage: Water level observed on staff plate,

Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), or baseflow (B)

Streamflow Estimated Accuracy: Data approved (a) or data preliminary (p)

Streamflow Source: measured by a hydrologist (M), obtained from an existing rating curve or gaging station [R]

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation  $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Turbidity values are reported from the sample using a desktop turbidimeter or from the NDOT water quality instrument located at the gage and do not reflect laboratory analysis and results

**Station Observer Log:**

**North Truckee Drain at Big Fish Dr (NTD@BFD)**

Gage operated and maintained by USGS Station #10348295

**Site Conditions**

**Streamflow**

**Water Quality Observations**

**Remarks**

Date/Time (observer time)	Observer	Stage (feet)	Hydrograph (R/F/S/B)	Streamflow (cfs)	Streamflow Source (M, R)	Estimated Accuracy (a/p)	High-water Mark (feet)	HWM date? (M/D/YY)	Water Temperature (oC)	Field Specific Conductance (µmhos/cm)	Adjusted Specific Conductance (at 25 oC)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	pH	Turbidity (NTU)	Samples collected? (yes/no)	Remarks
2020-08-19 8:45	bt	3.46	B	4.24	R	a	--	--	20.9	619	671	35	2.7	7.55	--	no	Ran diagnostics on ISCO-passed; tested the distribution arm; checked intake hose assembly and cleared; water is brown; no debris in channel
2020-09-03 10:00	bt	3.43	B	4.28	R	a	--	--	18.6	699	797	61	5.0	7.70	--	no	Iced ISCO and set to sample every hour starting at 12:00
2020-09-04 13:03	bt	3.53	B	5.18	R	a	--	--	22.1	807	852	74	5.6	7.57	69.00, 70.86, 68.30, 49.20	yes	24 ambient samples collected :NTD@BFD (1) T 21.4°C, C 784, SC 840, DO 76% 5.91 mg/l, pH 8.16; NTD@BFD (2) T 21.7°C, C 784, SC 834, DO 80% 6.17 mg/l, pH 8.14; NTD@BFD (3) T 23.1°C, C 758, SC 801, DO 74% 5.60 mg/l, pH 8.04; NTD@BFD (4) T 23.1°C, C 807, SC 852, DO 73% 5.48 mg/l, pH 8.00
2020-11-17 14:00	bt	2.06	B	1.61	R	a	--	--	9.7	727	1026	96	9.5	8.05	--	no	Water is lower than intake and intake is at the lowest setting; lowest observed water level since gage installation; USGS staff plate dry and 2 feet out of water; USGS bubbler partially exposed; filled ISCO with bottles and left a charged battery
2021-02-01 10:15	bt	2.15	B	2.29	R	a	--	--	4.5	1029	1679	76	8.7	8.42	--	no	Water is lower than intake and intake is at the lowest setting; lowest observed water level since gage installation; USGS staff plate dry and 2 feet out of water; some snow on banks; set ISCO to sample in anticipation of forecast rain on 2/2/21; set to sample every hour starting at 06:00
2021-02-02 10:00	jj	2.21	B	2.61	R	a	--	--	--	--	--	--	--	--	--	no	Capped bottles and shut off ISCO; disconnected battery; QPF forecast went to 0.01 inches and no runoff expected
2021-03-29 10:30	bt	1.98	B	0.85	R	a	--	--	8.0	1281	1897	149	15.2	8.51	5.30	yes	Water level is below the intake and intake is at the lowest setting; collected a grab sample at 10:35; water is clear with no debris; thick mud on channel bottom; water has a yellow hue
2021-04-23 9:15	bt, de	2.62	B	0.85	R	a	--	--	10.4	1245	1723	75	7.4	8.44	--	no	Flows and stage are higher than the 3/29/21 non storm sample; intake is in water; water is brown; vegetation is budding
2021-06-03 17:51	bt	3.62	R	7.85	R	p	4.32	2021-06-03	23.2	407	422	54	4.1	7.41	262.2	yes	Thunderstorm activity began at 16:30 in the Sparks area; flow is increasing from 2 cfs up to 8 at time of sample; water brown with lots of debris; grab sample collected at 17:56
2021-06-24 11:36	jj	2.55	R	0.72	R	p	--	--	20.5	555	607	21	1.6	6.51	--	no	Stage check before thunderstorms
2021-06-24 20:26	jj	3.62	R	8.10	R	p	--	--	21.5	247	265	14	1.1	6.46	110.6	yes	Grab sample collected at 20:35; water turbid with some debris floating; ≈3 hour delay from peak upstream at NTD@ORD

Observer Key: (bt) is Ben Trustman, (jj) is Jack Jacquet, (de) is Devon Eckberg

Stage: Water level observed on staff plate,

Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), or baseflow (B)

Streamflow Estimated Accuracy: Data approved (a) or data preliminary (p)

Streamflow Source: measured by a hydrologist (M), obtained from an existing rating curve or gaging station [R]

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation  $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Turbidity values are reported from the sample using a desktop turbidimeter and do not reflect laboratory analysis and results

**Station Observer Log:**

**North Truckee Drain at Orr Ditch (NTD@ORD)**

Gage operated and maintained by USGS Station #10348245

Site Conditions					Streamflow			Water Quality Observations							Remarks	
Date/Time (observer time)	Observer	Stage (feet)	Hydrograph (R/F/S/B)	Rainfall (in.)	Streamflow (cfs)	Streamflow Source (M, R)	Estimated Accuracy (a/p)	Water Temperature (oC)	Field Specific Conductance (µmhos/cm)	Adjusted Specific Conductance (at 25 oC)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	pH	Turbidity (NTU)	Samples collected? (yes/no)	Remarks
2020-09-03 10:30	bt	1.77	B	--	2.7	R	a	17.6	667	777	87	7.3	7.64	23.43	yes	Sample collected at 10:40; higher flow than past baseflow samples; water clear
2020-11-18 8:50	bt	1.69	R	0.05	2.7	R	a	7.4	1196	1800	69	7.2	7.88	15.42	yes	Intermittent rain at site; raining steady north of Virginia St.; flow has already increased 2 cfs from late night early morning; water slightly brown; sample collected at 9:00; extra sample collected for YSI measurements (11:00)-DO and temperature should be flagged
2021-03-29 10:51	bt	1.60	B	--	0.83	R	a	8.1	1476	2180	138	13.9	8.45	13.01	yes	Water has a yellow hue; sample collected at 11:00; no debris in channel
2021-05-15 14:18	bt, pr	1.90	R	0.03	2.41	R	a	13.6	1015	1299	73	6.7	7.99	72.56	yes	Ground is wet; USGS record indicates storm hydrograph from thunderstorms; intermittent light rain while at station; sample collected at 14:20

Observer Key: (bt) is Ben Trustman, (pr) is Paxton Ridgway

Stage: Water level observed on staff plate,

Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), or baseflow (B)

Streamflow Estimated Accuracy: Data approved (a) or data preliminary (p)

Streamflow Source: measured by a hydrologist (M), obtained from an existing rating curve or gaging station [R]

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation  $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Turbidity values are reported from the sample using a desktop turbidimeter and do not reflect laboratory analysis and results



**Station Observer Log:  
Boynton Slough at Steamboat Creek (BS@SBC)**

Site Conditions				Streamflow			Water Quality Observations							Remarks	
Date/Time (observer time)	Observer	New Stage (pillar)	Hydrograph	Streamflow	Streamflow Source	Estimated Accuracy	Water Temperature	Field Specific Conductance	Adjusted Specific Conductance	Dissolved Oxygen	Dissolved Oxygen	pH	Turbidity	Samples collected?	Remarks
		(feet)	(R/F/S/B)	(cfs)	(M, R)	(e/g/f/p)	(oC)	(µmhos/cm)	(at 25 oC)	(%)	(mg/L)		(NTU)	(yes/no)	
2020-08-19 10:46	bt	4.23	B	12.8	R	g	23.7	428	439	46	3.5	7.55	--	no	Ran diagnostics on ISCO; checked distribution arm; NDOT WQ: T 23.7°C, SC 435, DO 42% 3.61 mg/l, pH 7.53; water brown with spots of floating algae; big carp in channel
2020-09-03 9:31	bt	4.22	B	11.9	R	g	21.5	331	355	68	5.3	7.79	15.1 (NDOT)	no	Iced and set ISCO to sample every hour starting at 12:00 for ambient sampling; NDOT WQ: T21.5°C, SC 352, DO 68% 5.34 mg/l, pH 7.79; water brown
2020-09-04 12:06	bt	4.25	B	14.7	R	g	24.6	370	373	69	5.0	7.93	35.19, 24.09, 23.84, 30.26	yes	24 non-storm samples collected; BS@SBC(1) T17.7°C, C 305, SC 354, DO 76% 6.42 mg/l, pH 8.18; BS@SBC(2) T 17.6°C, C 310, SC 361, DO 81% 6.84 mg/l, pH 8.18; BS@SBC(3) T 19.4°C, C 321, SC 359, DO 82% 6.61 mg/l, pH 8.07; BS@SBC(4) T 23.2°C, C 347, SC 359, DO 73% 5.46 mg/l, pH 8.00; NDOT water quality T 24.0°C, SC 367, DO 69% 5.9 mg/l, pH 7.80, Turbidity 18.13 (NTU)
2020-11-17 13:40	bt	3.98	B	1.4	R	g	10.8	524	719	102	9.9	8.08	--	no	Loaded ISCO with bottles and capped; NDOT probe reading NAN
2021-01-07 10:45	pr	4.10	B	4.7	M	g	2.7	399	692	46	5.4	6.51	--	no	Blue skies; no wind low 30's; ice along edges; ice completely covers channels u/s around bend; REW has veg blocking flow; Soft bed, rod and feet sinking
2021-02-01 10:40	bt	4.15	B	6.7	R	g	6.6	411	633	55	5.9	7.67	3.2 (NDOT)	no	NDOT water quality: T 6.3°C, SC 608, DO 0.7% 0.09 mg/l; pH 7.42
2021-02-02 10:25	jj	--	--	--	--	--	--	--	--	--	--	--	--	no	Capped bottles and poured out ice
2021-02-11 9:57	bt	4.15	B	6.8	M	g	8.2	461	677	69	7.0	6.38	7.24 (NDOT)	no	NDOT water quality: T 8.7°C, SC 731, DO 67% 6.7 mg/l; pH 7.87; tumbleweed and debris on right bank; water brown and could not see probe at depth
2021-03-29 9:05	bt	4.20	B	10.2	R	g	10.5	277	384	93	9.0	7.77	9.01 (NDOT)	no	Set ISCO to sample every hour beginning at 12:00 400mL; water is brown; no debris in channel; NDOT WQ T 10.8°C, SC 403, DO 85% 8.13 mg/L, pH 8.00
2021-03-30 13:48	bt, dm	4.21	B	11.0	R	g	12.5	293	385	122	11.3	8.41	15.65 (NDOT)	yes	24 non-storm samples collected; BS@SBC(1) T5.1°C, C 242, SC 390, DO 86% 9.27 mg/l, pH 8.53, NTU 93.06; BS@SBC(2) T 5.4°C, C 245, SC 391, DO 94% 10.21 mg/l, pH 8.56, NTU 25.90; BS@SBC(3) T 6.8°C, C 258, SC 395, DO 92% 9.65 mg/l, pH 8.54, NTU 16.49; BS@SBC(4) T 9.6°C, C 279, SC 394, DO 91% 8.91 mg/l, pH 8.46, NTU 11.77; NDOT water quality T 14.0°C, SC 394, DO 123% 10.9 mg/l, pH 8.38, Turbidity 15.65 (NTU)
2021-04-23 11:00	bt, de	4.18	B	8.8	R	g	15.2	316	389	75	6.7	8.21	5.4 (NDOT)	no	Water slightly brown; no debris in channel; grasses dry; NDOT WQ T 15.8°C, SC 399, DO 93%, 7.95mg/l, pH 8.14
2021-06-16 12:08	bt	4.21	B	10.6	M	g	22.4	378	398	49	3.7	7.73	9.02 (NDOT)	no	Water is brown; cattails growing on the south bank; big carp in the stream; no debris in the channel under the bridge; NDOT WQ, T 23.7, SC 445, DO 51% 3.67mg/l, pH 7.80; NDOT Stage 4.18
2021-06-24 11:09	jj	4.20	B	10.2	R	g	21.8	419	447	54	4.0	7.01	--	no	Staff gage check before possible thunderstorms

Observer Key: (bt) is Ben Trustman, (de) is Devon Eckberg, (jj) is Jack Jacquet, (pr) is Paxton Ridgway, (dm) is Daniel Moss City of Reno

Stage: Water level observed on staff plate,

Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), or baseflow (B)

Streamflow Source: measured by a hydrologist (M), obtained from an existing rating curve or gaging station [R]

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation  $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Turbidity values are reported from the sample using a desktop turbidimeter or from the NDOT water quality instrument located at the gage and do not reflect laboratory analysis and results

**Station Observer Log:  
Yori Drain at Steamboat Creek (YD@SBC)**

Site Conditions				Streamflow			Water Quality Observations							Remarks	
Date/Time (observer time)	Observer	ISCO depth (feet)	Hydrograph (R/F/S/B)	Streamflow (cfs)	Streamflow Source (M, R)	Estimated Accuracy (e/g/f/p)	Water Temperature (oC)	Field Specific Conductance (µmhos/cm)	Adjusted Specific Conductance (at 25 oC)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	pH	Turbidity (NTU)	Samples collected? (yes/no)	Remarks
2020-08-19 9:26	bt	0.53	S	5.7	R	g/f	23.9	485	496	84	6.3	9.01	--	no	Ran diagnostics and maintenance; all checks ok; visual inspection ok; water brown; changed desiccant; downloaded ISCO; some foam on channel edges upstream of culvert
2020-09-03 8:52	bt	0.60	S	7.1	R	g/f	21.2	458	493	110	8.6	8.74	--	no	Loaded ISCO with ice and set to sample every hour starting at 12:00 for ambient sampling
2020-09-04 14:00	bt	0.43	S	5.1	R	g/f	26.9	511	493	172	12.2	8.99	36.41, 27.60, 28.27, 27.81	yes	24 ambient samples collected; separated into four composite bottles; YD@SBC (1) T 22.6°C, C 469, SC 492, DO 89% 6.72 mg/l, pH 8.82; YD@SBC (2) T 23.1°C, C 469, SC 487, DO 87% 6.51mg/l, pH 8.95; YD@SBC (3) T 24.0 °C, C 480, SC 489, DO 84% 6.22 mg/l, pH 8.83; YD@SBC (4) T24.5°C, C 494 , SC 498, DO 82% 6.02 mg/l, pH 8.74;
2021-01-21 16:28	bt	0.39	S	4.5	R	g/f	10.4	434	603	125	12.0	6.53	--	no	Received key from RTC Washoe County; downloaded ISCO; debris from upstream was cleared and is piled just out of the culvert outlet-could be affecting flow
2021-02-01 11:07	bt	0.37	S	4.9	R	g/f	10.4	412	671	31	3.1	7.43	--	no	Removed debris from outlet and cleaned off probe-debris was removed at 11:30; ISCO read 0.47ft and 6.2 cfs after removal; set to sample every hour starting above 0.55ft and not before 06:00 on 2/2/21; reset clock on ISCO
2021-02-02 12:24	jj	--	--	--	--	--	--	--	--	--	--	--	--	no	Capped bottles and stopped program; no spillover into Truckee Meadows
2021-03-29 9:35	bt	0.47	S	5.7	R	g/f	9.1	426	613	86	8.5	7.48	--	no	Probe was covered with algae reading depth but not flow; began reading after cleaned; set ISCO to sample 400mL every hour starting at 12:00
2021-03-30 15:15	bt	0.40	S	4.2	R	f	16.8	509	604	172	14.5	8.45	24.27	yes	Only 7 samples collected; error with battery; changed the battery; processed the 7 samples into one composite; DO has increased x2 since previous day; algae floating on water, but water is very clear upstream of the culvert
2021-04-23 10:10	bt, de	0.34	S	3.6	R	f	12.6	465	610	104	9.7	7.91	--	no	Water clear and no debris upstream; lots of algae on the probe possibly causing error in reading; cleaned the probe and the signal increased
2021-06-24 10:13	bt, jj	0.54	S	7.2	R	f	17.0	339	400	53	4.4	6.08	--	no	ISCO was not reading flow upon arrival; reading depth and velocity; debris (stick) was wedged in front of the probe and removed; once debris cleared flow reading resumed; Hach velocity check: depth 0.5ft, velocity 5.32ft/s (ISCO reading 5.67ft/s); downloaded ISCO and Solinst back up logger

Observer Key: (bt) is Ben Trustman, (jj) is Jack Jacquet, (de) is Devon Eckberg

Stage: Water level observed on staff plate,

Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), or baseflow (B)

Streamflow Source: measured by a hydrologist (M), obtained from an existing rating curve or gaging station [R]

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation  $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Turbidity values are reported from the sample using a desktop turbidimeter and do not reflect laboratory analysis and results

**APPENDIX B**

**FY2021 Equipment Calibration Logs**

**CALIBRATION SHEET**

DATE/TIME 2020-07-16  
 NAME Ben Trustman  
 SERIAL NUMBER 1692

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	y
	500 (µs/cm)	500	500	4.85	Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	1041	1000	4.85	Acceptable cell const. 4.0-6.0	

pH Point #	circle one			mV Value		Slope		Notes
pH Point #1	4.00 <b>7.00</b> 10.00			7.09	6.99	-6.4	56.04	pH 7 mV value = 0 +/- 50
pH Point #2	<b>4.00</b> 7.00 10.00			3.97	4	177.6		pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value
pH Point #3	4.00 7.00 <b>10.00</b>			9.89	9.98	-158.9		Ideal slope is between 55 and 60 1.25 mil yellow membrane Acceptable: 4.31 to 8.00 uA

DISSOLVED OXYGEN (% sat)	n/a	97	100	4.86
DISSOLVED OXYGEN (% sat)	n/a			

**Comments or Notes**  
 pH 10 out of mV range but slope ok

**CALIBRATION SHEET**

DATE/TIME 2020-07-16  
 NAME Ben Trustman  
 SERIAL NUMBER 1692

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<input type="checkbox"/>
	500 (µs/cm)	513	500		Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	935	1000		Acceptable cell const. 4.0-6.0	

pH Point #	pH Values	mV Value		Slope		Notes
pH Point #1	4.00 <i>circle one</i> 7.00 10.00	7.13	6.99	-7.43	100.46	pH 7 mV value = 0 +/- 50
pH Point #2	4.00 7.00 10.00	4.01	4	178.3		pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value
pH Point #3	4.00 7.00 10.00	10.22	9.98	-176.57		Ideal slope is between 55 and 60 1.25 mil yellow membrane Acceptable: 4.31 to 8.00 uA

DISSOLVED OXYGEN (% sat)	n/a			
DISSOLVED OXYGEN (% sat)	n/a			

**Comments or Notes**  
 Values were not stored on YSI-calculated from written logs; pH slope  $((mV\ pH4 - mV\ pH\ 7)/3)/59.16 * 100 = 85$  to 105 then calibration is good

**CALIBRATION SHEET**

DATE/TIME 2020-09-03  
 NAME Ben Trustman  
 SERIAL NUMBER 1692

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<input type="checkbox"/>
	500 (µs/cm)	538	500		Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	935	1000		Acceptable cell const. 4.0-6.0	

pH Point #	pH	mV Value	Slope	Notes
pH Point #1	4.00	6.99	6.99	pH 7 mV value = 0 +/- 50
	<i>circle one</i> 7.00	0.57	97.23	
pH Point #2	4.00	3.97	4	pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value
	7.00			
pH Point #3	4.00	9.93	9.98	Ideal slope is between 55 and 60 1.25 mil yellow membrane Acceptable: 4.31 to 8.00 uA
	7.00			
	10.00			

DISSOLVED OXYGEN (% sat)	n/a			
DISSOLVED OXYGEN (% sat)	n/a			

**Comments or Notes**  
 Values were not stored on YSI-calculated from written logs; pH slope  $((mV\ pH4 - mV\ pH\ 7)/3)/59.16 * 100 = 85$  to 105 then calibration is good

**CALIBRATION SHEET**

DATE/TIME 2020-09-16  
 NAME Ben Trustman  
 SERIAL NUMBER 1692

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<input type="checkbox"/>
	500 (µs/cm)	521	500		Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	935	1000		Acceptable cell const. 4.0-6.0	

pH Point #	circle one			mV Value		Slope		Notes
pH Point #1	4.00 <b>7.00</b> 10.00			7.19	6.99	-10.86	104.32	pH 7 mV value = 0 +/- 50
pH Point #2	<b>4.00</b> 7.00 10.00			3.95	4	185.2		pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value
pH Point #3	4.00 7.00 <b>10.00</b>			9.77	9.98	-147.43		Ideal slope is between 55 and 60 1.25 mil yellow membrane Acceptable: 4.31 to 8.00 uA

DISSOLVED OXYGEN (% sat)	n/a			
DISSOLVED OXYGEN (% sat)	n/a			

**Comments or Notes**  
 Values were not stored on YSI-calculated from written logs; pH slope  $((mV\ pH4 - mV\ pH\ 7)/3)/59.16 * 100 = 85$  to 105 then calibration is good  
 pH 4 and 10 values off but slope ok

**CALIBRATION SHEET**

DATE/TIME 2020-11-16  
 NAME Ben Trustman  
 SERIAL NUMBER 1692

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<input type="checkbox"/>
	500 (µs/cm)	579	500		Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	905	1000		Acceptable cell const. 4.0-6.0	

pH Point #	pH	mV Value	Slope	Notes
pH Point #1	4.00	7.5	107.54	pH 7 mV value = 0 +/- 50
	<i>circle one</i> 7.00	6.99	-28.57	
pH Point #2	4.00	4.16	190.9	pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value
	7.00	4		
pH Point #3	10.00	9.98	-165.72	Ideal slope is between 55 and 60

1.25 mil yellow membrane  
Acceptable: 4.31 to 8.00 uA

DISSOLVED OXYGEN (% sat)	n/a		
DISSOLVED OXYGEN (% sat)	n/a		

**Comments or Notes**  
 Values were not stored on YSI-calculated from written logs; pH slope  $\frac{((mV\ pH4 - mV\ pH\ 7)/3)/59.16 * 100 = 85\ to\ 105}$  then calibration is good  
 Calculated values are out of range



**CALIBRATION SHEET**

DATE/TIME 2020-12-11  
 NAME Ben Trustman  
 SERIAL NUMBER 1692

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<input type="checkbox"/>
	500 (µs/cm)	513	500		Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	1002	1000		Acceptable cell const. 4.0-6.0	

pH Point #	pH	mV Value	Slope	Notes
pH Point #1	4.00	7.11	56.00	pH 7 mV value = 0 +/- 50
	<i>circle one</i> 7.00	7.02	-5.6	
pH Point #2	4.00	4	170.8	pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value
	7.00	4		
pH Point #3	10.00	10.05	-164.79	Ideal slope is between 55 and 60

DISSOLVED OXYGEN (% sat)	n/a	86	100	2.97
DISSOLVED OXYGEN (% sat)	n/a			

**Comments or Notes**  
 DO replacement recommended

1.25 mil yellow membrane  
 Acceptable: 4.31 to 8.00 uA

**CALIBRATION SHEET**

DATE/TIME 2020-12-31  
 NAME Ben Trustman  
 SERIAL NUMBER 1692

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<input type="checkbox"/>
	500 (µs/cm)	508	500	4.7	Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	938	1000	5	Acceptable cell const. 4.0-6.0	

pH Point #	pH Values	mV Value		Slope		Notes
pH Point #1	4.00 <i>circle one</i> 7.00 10.00	7.11	7.02	-8.5	55.69	pH 7 mV value = 0 +/- 50
pH Point #2	4.00 7.00 10.00	4	4	168.9		pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value
pH Point #3	4.00 7.00 10.00	10.05	9.98	-162		Ideal slope is between 55 and 60

1.25 mil yellow membrane  
 Acceptable: 4.31 to 8.00 uA

DISSOLVED OXYGEN (% sat)	n/a	86	100	2.97
DISSOLVED OXYGEN (% sat)	n/a			

**Comments or Notes**  
 ph 10 values low; slope ok

**CALIBRATION SHEET**

DATE/TIME 2021-01-30  
 NAME Ben Trustman  
 SERIAL NUMBER 1692

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div> y y
	500 (µs/cm)	538	500	4.66	Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	935	1000	4.9	Acceptable cell const. 4.0-6.0	

pH Point #	circle one			mV Value		Slope		Notes
pH Point #1	4.00 <b>7.00</b> 10.00	7.15	7.03	-12.2	57.00			pH 7 mV value = 0 +/- 50
pH Point #2	<b>4.00</b> 7.00 10.00	3.92	4	175.4				pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value
pH Point #3	4.00 7.00 <b>10.00</b>	10.15	10.09	-162.8				Ideal slope is between 55 and 60

1.25 mil yellow membrane  
Acceptable: 4.31 to 8.00 uA

DISSOLVED OXYGEN (% sat)	n/a	92	100	2.97
DISSOLVED OXYGEN (% sat)	n/a			

**Comments or Notes**  
 ph 10 values low; slope ok

**CALIBRATION SHEET**

DATE/TIME 2021-03-28  
 NAME Ben Trustman  
 SERIAL NUMBER 1692

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration	Post-Calibration	Cell Constant	Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div> y y
	500 (µs/cm)	610	500	4.09	Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	793	1000	5.1	Acceptable cell const. 4.0-6.0	

	<i>circle one</i>				mV Value	Slope		
pH Point #1	4.00	7.00	10.00	7.12	7.03	-6.5	54.20	pH 7 mV value = 0 +/- 50
pH Point #2	4.00	7.00	10.00	3.97	4	169.9		pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value
pH Point #3	4.00	7.00	10.00	9.75	10.09	-151.6		Ideal slope is between 55 and 60

1.25 mil yellow membrane  
Acceptable: 4.31 to 8.00 uA

DISSOLVED OXYGEN (% sat)	n/a			
DISSOLVED OXYGEN (% sat)	n/a			

**Comments or Notes**  
 ph 10 values low; slope low

**CALIBRATION SHEET**

DATE/TIME 2021-04-22  
 NAME Ben Trustman  
 SERIAL NUMBER 1692

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div> y y
	500 (µs/cm)	514	500	5	Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	979	1000	5.1	Acceptable cell const. 4.0-6.0	

pH Point #	pH	mV Value	Slope	Notes
pH Point #1	4.00	7.18	7.03	pH 7 mV value = 0 +/- 50
	<i>circle one</i> 7.00			
pH Point #2	4.00	3.93	4	pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value
	7.00			
pH Point #3	4.00	10.33	10.09	Ideal slope is between 55 and 60 1.25 mil yellow membrane Acceptable: 4.31 to 8.00 uA
	7.00			
	10.00			

DISSOLVED OXYGEN (% sat)	Pre-Cal	Post-Cal	Cell Constant
n/a	94	100	3.3
DISSOLVED OXYGEN (% sat)			
DISSOLVED OXYGEN (% sat)			

**Comments or Notes**  
 DO uA low and needs replacement

**CALIBRATION SHEET**

DATE/TIME 2021-05-15  
 NAME Ben Trustman  
 SERIAL NUMBER 1692

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<input type="checkbox"/>
	500 (µs/cm)		500	5	Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)		1000	5.1	Acceptable cell const. 4.0-6.0	

pH Point #	pH	pH	pH	mV Value		Slope		Notes
pH Point #1	4.00	<u>7.00</u>	10.00	6.99	7.03	0.57	95.30	pH 7 mV value = 0 +/- 50
pH Point #2	<u>4.00</u>	7.00	10.00	4.03	4	169.1		pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value
pH Point #3	4.00	7.00	<u>10.00</u>	10.02	10.09	-173.1		Ideal slope is between 55 and 60 1.25 mil yellow membrane Acceptable: 4.31 to 8.00 uA

DISSOLVED OXYGEN (% sat)	n/a			
DISSOLVED OXYGEN (% sat)	n/a			

**Comments or Notes**  
 Values were not stored on YSI-calculated from written logs; pH slope  $\left(\frac{mV_{pH4} - mV_{pH7}}{3}\right) / 59.16 * 100 = 85$  to 105 then calibration is good

**CALIBRATION SHEET**

DATE/TIME 2021-06-03  
 NAME Ben Trustman  
 SERIAL NUMBER 1692

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<input type="checkbox"/>
	500 (µs/cm)		500	5	Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)		1000	5.1	Acceptable cell const. 4.0-6.0	

pH Point #	circle one			mV Value		Slope		Notes
pH Point #1	4.00 7.00 10.00			7.09	7.01	-7.5	55.70	pH 7 mV value = 0 +/- 50
pH Point #2	4.00 7.00 10.00			4.1	4	169.2		pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value
pH Point #3	4.00 7.00 10.00			9.98	10.02	-163.8		Ideal slope is between 55 and 60

1.25 mil yellow membrane  
 Acceptable: 4.31 to 8.00 uA

DISSOLVED OXYGEN (% sat)	n/a		100	4.2
DISSOLVED OXYGEN (% sat)	n/a			

**Comments or Notes**  
 DO uA low and needs replacement  
 pH 10 values low but slope ok

**CALIBRATION SHEET**

DATE/TIME 2021-06-07  
 NAME Ben Trustman  
 SERIAL NUMBER 1692

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<input type="checkbox"/>
	500 (µs/cm)		500	5	Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)		1000	5.1	Acceptable cell const. 4.0-6.0	

pH Point #	circle one			mV Value		Slope		Notes
pH Point #1	4.00 <b>7.00</b> 10.00			7.07	7.01	-8.8	50.00	pH 7 mV value = 0 +/- 50
pH Point #2	<b>4.00</b> 7.00 10.00			3.95	4	171.3		pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value
pH Point #3	4.00 7.00 <b>10.00</b>			9.4	10.03	-128.8		Ideal slope is between 55 and 60

1.25 mil yellow membrane  
 Acceptable: 4.31 to 8.00 uA

DISSOLVED OXYGEN (% sat)	n/a		100	4.2
DISSOLVED OXYGEN (% sat)	n/a			

**Comments or Notes**  
 DO uA low and needs replacement  
 pH 10 values low and slope low



**CALIBRATION SHEET**

DATE/TIME 2021-06-23  
 NAME Ben Trustman  
 SERIAL NUMBER 1692

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div> y y
	500 (µs/cm)	515	500	4.8	Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	970	1000	5	Acceptable cell const. 4.0-6.0	

pH Point #	circle one			mV Value		Slope		Notes
pH Point #1	4.00 <b>7.00</b> 10.00	7.29	7.01	-8	50.30			pH 7 mV value = 0 +/- 50
pH Point #2	<b>4.00</b> 7.00 10.00	3.84	4	172.3				pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value
pH Point #3	4.00 7.00 <b>10.00</b>	9.82	10.04	-125.8				Ideal slope is between 55 and 60

1.25 mil yellow membrane  
Acceptable: 4.31 to 8.00 uA

DISSOLVED OXYGEN (% sat)	n/a		100	4.2
DISSOLVED OXYGEN (% sat)	n/a			

**Comments or Notes**  
 DO uA low and needs replacement  
 pH 10 values low and slope low

**CALIBRATION SHEET**

DATE/TIME 2020-07-22  
 NAME Ben Trustman  
 SERIAL NUMBER 1693

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration	Post-Calibration	Cell Constant	Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div> y y
	500 (µs/cm)	517	500	4.54	Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	1007	1000	4.86	Acceptable cell const. 4.0-6.0	

pH Point	Buffer	mV Value	Slope	Notes
pH Point #1	<i>circle one</i>			
	4.00 7.00 10.00	6.66	7	-29.2 55.84
pH Point #2	<i>circle one</i>			
	4.00 7.00 10.00	3.3	4	176.3
pH Point #3	4.00 7.00 10.00	9.67	10.01	-157.69

pH 7 mV value = 0 +/- 50  
 pH 4 mV value = +165 to +180 from 7 buffer mV value  
 pH 10 mV value = -165 to -180 from 7 buffer mV value  
 Ideal slope is between 55 and 60

1.25 mil yellow membrane  
 Acceptable: 4.31 to 8.00 uA

DISSOLVED OXYGEN (% sat)

**Comments or Notes**  
 pH 10 mV low but slope ok; stored probe in pH 4 for 3 days to fix pH probe

**CALIBRATION SHEET**

DATE/TIME 2020-11-16  
 NAME Ben Trustman  
 SERIAL NUMBER 1693

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<input type="checkbox"/>
	500 (µs/cm)	562	500		Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	900	1000		Acceptable cell const. 4.0-6.0	

pH Point #	pH Values	mV Value		Slope		Notes
pH Point #1	4.00 <u>7.00</u> 10.00	7.25	7	-14.29	100.14	pH 7 mV value = 0 +/- 50 pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value Ideal slope is between 55 and 60
pH Point #2	<u>4.00</u> 7.00 10.00	4.14	4	177.72		
pH Point #3	4.00 7.00 <u>10.00</u>	10	10.01	-157.14		

DISSOLVED OXYGEN (% sat) Acceptable: 4.31 to 8.00 uA

**Comments or Notes**  
 Values were not stored on YSI-calculated from written logs; pH slope  $\frac{((mV\ pH4 - mV\ pH\ 7)/3)/59.16}{100} = 85\ to\ 105$  then calibration is good

**CALIBRATION SHEET**

DATE/TIME 2020-12-11  
 NAME Ben Trustman  
 SERIAL NUMBER 1693

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration		Post-Calibration	Cell Constant	Notes	Pass?
	100 (µs/cm)					Acceptable cell const. 4.0-6.0	<input type="checkbox"/>
	500 (µs/cm)		530	500		Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)		935	1000		Acceptable cell const. 4.0-6.0	

pH Point #	pH	mV Value	Slope	Notes	
				Pre-Cal	Post-Cal
pH Point #1	4.00	7.05	7	-2.86	103.67
	7.00				
pH Point #2	4.00	3.83	4	184	
	7.00				
pH Point #3	4.00	9.96	10.01	-166.28	
	7.00				

DISSOLVED OXYGEN (% sat) 99 Acceptable: 4.31 to 8.00 uA

**Comments or Notes**  
 Values were not stored on YSI-calculated from written logs; pH slope  $\frac{((mV\ pH4 - mV\ pH\ 7)/3)/59.16}{100} = 85\ to\ 105$  then calibration is good

**CALIBRATION SHEET**

DATE/TIME 2020-12-31  
 NAME Ben Trustman  
 SERIAL NUMBER 1693

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration		Post-Calibration	Cell Constant	Notes	Pass?
	100 (µs/cm)					Acceptable cell const. 4.0-6.0	<input type="checkbox"/>
	500 (µs/cm)		538	500		Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)		960	1000		Acceptable cell const. 4.0-6.0	

pH Point #	pH Values	mV Value	Slope	Notes
pH Point #1	4.00 <i>circle one</i> 7.00 10.00	7.1	7	pH 7 mV value = 0 +/- 50 pH 4 mV value = +165 to +180 from 7 buffer mV value
pH Point #2	4.00 <i>circle one</i> 7.00 10.00	4.07	4	pH 10 mV value = -165 to -180 from 7 buffer mV value
pH Point #3	4.00 7.00 10.00	9.96	10.01	Ideal slope is between 55 and 60

DISSOLVED OXYGEN (% sat) Acceptable: 4.31 to 8.00 uA

**Comments or Notes**  
 Values were not stored on YSI-calculated from written logs; pH slope  $\left(\frac{(mV\ pH4 - mV\ pH\ 7)}{3}\right) / 59.16 * 100 = 85\ to\ 105$  then calibration is good

**CALIBRATION SHEET**

DATE/TIME 2021-01-07  
 NAME Ben Trustman  
 SERIAL NUMBER 1693

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<input type="checkbox"/>
	500 (µs/cm)	505	500		Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	979	1000		Acceptable cell const. 4.0-6.0	

pH Point #	pH Values	mV Value	Slope	Notes
pH Point #1	4.00 <i>circle one</i> 7.00 10.00	7.2	7	pH 7 mV value = 0 +/- 50 pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value Ideal slope is between 55 and 60
pH Point #2	4.00 <i>circle one</i> 7.00 10.00	3.98	4	
pH Point #3	4.00 7.00 <i>circle one</i> 10.00	10.21	10.01	

DISSOLVED OXYGEN (% sat) Acceptable: 4.31 to 8.00 uA

**Comments or Notes**  
 Values were not stored on YSI-calculated from written logs; pH slope  $((mV\ pH4 - mV\ pH\ 7)/3)/59.16 * 100 = 85\ to\ 105$  then calibration is good

**CALIBRATION SHEET**

DATE/TIME 2021-01-21  
 NAME Ben Trustman  
 SERIAL NUMBER 1693

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<input type="checkbox"/>
	500 (µs/cm)	532	500		Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	932	1000		Acceptable cell const. 4.0-6.0	

pH Point #	pH Values	mV Value		Slope		Notes
pH Point #1	4.00 <i>circle one</i> 7.00 10.00	7.06	7	-3.43	97.23	pH 7 mV value = 0 +/- 50 pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value Ideal slope is between 55 and 60
pH Point #2	4.00 <i>circle one</i> 7.00 10.00	4.04	4	172.57		
pH Point #3	4.00 7.00 <i>circle one</i> 10.00	10.04	10.01	-170.28		

DISSOLVED OXYGEN (% sat) Acceptable: 4.31 to 8.00 uA

**Comments or Notes**  
 Values were not stored on YSI-calculated from written logs; pH slope  $\frac{((mV\ pH4 - mV\ pH\ 7)/3)/59.16}{100} = 85\ to\ 105$  then calibration is good

**CALIBRATION SHEET**

DATE/TIME 2021-01-26  
 NAME Ben Trustman  
 SERIAL NUMBER 1693

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<input type="checkbox"/>
	500 (µs/cm)	512	500		Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	997	1000		Acceptable cell const. 4.0-6.0	

pH Point #	pH Values	mV Value		Slope		Notes
		Pre-Cal	Post-Cal	Pre-Cal	Post-Cal	
pH Point #1	4.00 <i>circle one</i> 7.00 10.00	7.1	7.03	-35.29	95.89	pH 7 mV value = 0 +/- 50 pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value Ideal slope is between 55 and 60
	<i>circle one</i> 4.00 7.00 10.00	3.9	4	170.18		
pH Point #2	4.00 7.00 10.00	10.12	10.09	-160.1		

DISSOLVED OXYGEN (% sat) Acceptable: 4.31 to 8.00 uA

**Comments or Notes**  
 All values were not stored on YSI-calculated from written logs; pH slope  $\frac{((mV\ pH4 - mV\ pH\ 7)/3)/59.16}{100} = 85\ to\ 105$  then calibration is good



**CALIBRATION SHEET**

DATE/TIME 2021-02-11  
 NAME Ben Trustman  
 SERIAL NUMBER 1693

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration	Post-Calibration	Cell Constant	Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div> y y
	500 (µs/cm)	501	500	4.6	Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	1007	1000	4.7	Acceptable cell const. 4.0-6.0	

					mV Value	Slope		
pH Point #1	<i>circle one</i>							
	4.00	7.00	10.00	7.15	7.03	-37.7	55.00	pH 7 mV value = 0 +/- 50 pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value Ideal slope is between 55 and 60
pH Point #2	<i>circle one</i>							
	4.00	7.00	10.00	3.88	4	177.2		
pH Point #3	4.00	7.00	10.00	9.84	10.09	-145.6		

DISSOLVED OXYGEN (% sat) Acceptable: 4.31 to 8.00 uA

**Comments or Notes**  
 pH 10 value low but slope ok

**CALIBRATION SHEET**

DATE/TIME 2021-03-28  
 NAME Ben Trustman  
 SERIAL NUMBER 1693

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration	Post-Calibration	Cell Constant	Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div> y y
	500 (µs/cm)	499	500	4.8	Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	972	1000	4.8	Acceptable cell const. 4.0-6.0	

					mV Value	Slope	
pH Point #1	<i>circle one</i>						
	4.00	7.00	10.00	7.3	7.03	-40.79	55.00
pH Point #2	<i>circle one</i>						
	4.00	7.00	10.00	4.1	4	169.29	
pH Point #3	4.00	7.00	10.00	10.2	10.09	-154.01	

pH 7 mV value = 0 +/- 50  
 pH 4 mV value = +165 to +180 from 7 buffer mV value  
 pH 10 mV value = -165 to -180 from 7 buffer mV value  
 Ideal slope is between 55 and 60

DISSOLVED OXYGEN (% sat)			Acceptable: 4.31 to 8.00 uA
	93	100	2.85

**Comments or Notes**  
 pH 10 value low but slope ok; DO sensor uA is low

**CALIBRATION SHEET**

DATE/TIME 2021-04-01  
 NAME Ben Trustman  
 SERIAL NUMBER 1693

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div> y y
	500 (µs/cm)	514	500	4.6	Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	970	1000	4.8	Acceptable cell const. 4.0-6.0	

pH Point #	pH Values	mV Value		Slope		Notes
pH Point #1	4.00 <i>circle one</i> 7.00 10.00	7.17	7.03	-9.71	106.57	pH 7 mV value = 0 +/- 50 pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value Ideal slope is between 55 and 60
	<i>circle one</i>					
pH Point #2	4.00 7.00 10.00	3.86	4	189.14		
pH Point #3	4.00 7.00 10.00	9.99	10.09	-161.15		

DISSOLVED OXYGEN (% sat) Acceptable: 4.31 to 8.00 uA

**Comments or Notes**  
 pH 4 and 10 values low  
 Values were not stored on YSI-calculated from written logs; pH slope  $\frac{((mV\ pH4 - mV\ pH\ 7)/3)/59.16 * 100 = 85\ to\ 105}$  then calibration is good  
 Slope high

**CALIBRATION SHEET**

DATE/TIME 2021-04-22  
 NAME Ben Trustman  
 SERIAL NUMBER 1693

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration	Post-Calibration	Cell Constant	Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<input type="checkbox"/> y y
	500 (µs/cm)	518	500	4.6	Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)	969	1000	4.8	Acceptable cell const. 4.0-6.0	

					mV Value	Slope			
pH Point #1	<i>circle one</i>	4.00	7.00	10.00	7.12	7.03	-39	54.40	pH 7 mV value = 0 +/- 50 pH 4 mV value = +165 to +180 from 7 buffer mV value
pH Point #2	<i>circle one</i>	4.00	7.00	10.00	3.91	4	172.1		pH 10 mV value = -165 to -180 from 7 buffer mV value Ideal slope is between 55 and 60
pH Point #3		4.00	7.00	10.00	9.94	10.1	-150.1		

DISSOLVED OXYGEN (% sat)	Acceptable: 4.31 to 8.00 uA		
	100	100	3.1

**Comments or Notes**  
 pH 10 values low  
 slope low  
 DO uA is low

**CALIBRATION SHEET**

DATE/TIME 2021-05-15  
 NAME Ben Trustman  
 SERIAL NUMBER 1693

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<input type="checkbox"/>
	500 (µs/cm)		500		Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)		1000		Acceptable cell const. 4.0-6.0	

pH Point #	circle one	circle one	circle one	mV Value		Slope		Notes
pH Point #1	4.00	7.00	10.00	7.09	7.02	-34.09	54.10	pH 7 mV value = 0 +/- 50 pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value Ideal slope is between 55 and 60
pH Point #2	4.00	7.00	10.00	4.09	4	160.39		
pH Point #3	4.00	7.00	10.00	10.12	10.06	-161.51		

DISSOLVED OXYGEN (% sat) Acceptable: 4.31 to 8.00 uA

**Comments or Notes**  
 pH 4 and 10 values are low; slope low

**CALIBRATION SHEET**

DATE/TIME 2021-06-16  
 NAME Ben Trustman  
 SERIAL NUMBER 1693

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration	Post-Calibration	Cell Constant	Notes	Pass?		
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<table border="1"> <tr><td>4.5</td></tr> <tr><td>4.8</td></tr> </table>	4.5	4.8
4.5								
4.8								
	500 (µs/cm)	526	500		Acceptable cell const. 4.0-6.0			
	1000 (µs/cm)	951	1000		Acceptable cell const. 4.0-6.0			

					mV Value	Slope			
pH Point #1	<i>circle one</i>	4.00	7.00	10.00	7.02	7.02	-34.2	51.20	pH 7 mV value = 0 +/- 50 pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value Ideal slope is between 55 and 60
pH Point #2	<i>circle one</i>	4.00	7.00	10.00	3.75	4	173.8		
pH Point #3		4.00	7.00	10.00	9.45	10.06	-128.49		

DISSOLVED OXYGEN (% sat)	Acceptable: 4.31 to 8.00 uA		
	94	100	3.49

**Comments or Notes**  
 pH 10 values are low; slope low  
 uA for DO low recommend replacement

**CALIBRATION SHEET**

DATE/TIME 2021-06-23  
 NAME Ben Trustman  
 SERIAL NUMBER 1693

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration	Post-Calibration	Cell Constant	Notes	Pass?		
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<table border="1"> <tr><td>4.5</td></tr> <tr><td>4.8</td></tr> </table>	4.5	4.8
4.5								
4.8								
	500 (µs/cm)	526	500		Acceptable cell const. 4.0-6.0			
	1000 (µs/cm)	1000	1000		Acceptable cell const. 4.0-6.0			

						mV Value	Slope	
pH Point #1	<i>circle one</i>	4.00	7.00	10.00				
					7.52	7.02	-44.09	50.00
pH Point #2	<i>circle one</i>	4.00	7.00	10.00				
					3.75	4	174.59	
pH Point #3		4.00	7.00	10.00	9.45	10.06	-122.41	

pH 7 mV value = 0 +/- 50  
 pH 4 mV value = +165 to +180 from 7 buffer mV value  
 pH 10 mV value = -165 to -180 from 7 buffer mV value  
 Ideal slope is between 55 and 60

DISSOLVED OXYGEN (% sat) Acceptable: 4.31 to 8.00 uA

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**Comments or Notes**  
 pH 10 values are low; slope low  
 uA for DO low recommend replacement

**CALIBRATION SHEET**

DATE/TIME 2021-06-29  
 NAME Ben Trustman  
 SERIAL NUMBER 1693

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration Post-Calibration Cell Constant			Notes	Pass?
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<input type="checkbox"/>
	500 (µs/cm)		500		Acceptable cell const. 4.0-6.0	
	1000 (µs/cm)		1000		Acceptable cell const. 4.0-6.0	

pH Point #	pH Values	Pre-Calibration		Post-Calibration		mV Value	Slope	Notes
pH Point #1	4.00 <i>circle one</i> 7.00 10.00			7.29	7.02	-39.9	50.00	pH 7 mV value = 0 +/- 50 pH 4 mV value = +165 to +180 from 7 buffer mV value pH 10 mV value = -165 to -180 from 7 buffer mV value Ideal slope is between 55 and 60
pH Point #2	4.00 <i>circle one</i> 7.00 10.00			3.79	4	173.7		
pH Point #3	4.00 7.00 10.00			9.82	10.06	-124.2		

DISSOLVED OXYGEN (% sat) Acceptable: 4.31 to 8.00 uA  
3.49

**Comments or Notes**  
 pH 10 values are low; slope low  
 uA for DO low recommend replacement



**CALIBRATION SHEET**

DATE/TIME 2021-07-19  
 NAME Ben Trustman  
 SERIAL NUMBER 1693

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration	Post-Calibration	Cell Constant	Notes	Pass?		
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<table border="1"> <tr><td>4.6</td></tr> <tr><td>4.7</td></tr> </table>	4.6	4.7
4.6								
4.7								
	500 (µs/cm)	496	500		Acceptable cell const. 4.0-6.0			
	1000 (µs/cm)	960	1000		Acceptable cell const. 4.0-6.0			

						mV Value	Slope
pH Point #1	<i>circle one</i>	4.00	7.00	10.00			
					7.4	7.02	-42.2
pH Point #2	<i>circle one</i>	4.00	7.00	10.00			
					4.15	4	162.39
pH Point #3		4.00	7.00	10.00	10.69	10.06	-163.1

pH 7 mV value = 0 +/- 50  
 pH 4 mV value = +165 to +180 from 7 buffer mV value  
 pH 10 mV value = -165 to -180 from 7 buffer mV value  
 Ideal slope is between 55 and 60

DISSOLVED OXYGEN (% sat) Acceptable: 4.31 to 8.00 uA  

		3.49
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**Comments or Notes**  
 pH 4 and 10 values are low; slope ok  
 uA for DO low recommend replacement

**CALIBRATION SHEET**

DATE/TIME 2021-07-29  
 NAME Ben Trustman  
 SERIAL NUMBER 1693

SPECIFIC CONDUCTANCE (µs/cm)	Buffer Standard Used	Pre-Calibration	Post-Calibration	Cell Constant	Notes	Pass?		
	100 (µs/cm)				Acceptable cell const. 4.0-6.0	<table border="1"> <tr><td>4.6</td></tr> <tr><td>4.7</td></tr> </table>	4.6	4.7
4.6								
4.7								
	500 (µs/cm)	518	500		Acceptable cell const. 4.0-6.0			
	1000 (µs/cm)	985	1000		Acceptable cell const. 4.0-6.0			

pH Point #	pH Values	Pre-Calibration	Post-Calibration	mV Value	Slope	Notes
pH Point #1	4.00 <i>circle one</i> 7.00 10.00	6.55	7.02	-16.6	56.00	pH 7 mV value = 0 +/- 50 pH 4 mV value = +165 to +180 from 7 buffer mV value
pH Point #2	4.00 <i>circle one</i> 7.00 10.00	3.49	4	164.9		pH 10 mV value = -165 to -180 from 7 buffer mV value Ideal slope is between 55 and 60
pH Point #3	4.00 7.00 <i>circle one</i> 10.00	9.7	10.06	-169.6		

DISSOLVED OXYGEN (% sat) Acceptable: 4.31 to 8.00 uA  

		3.49
--	--	------

**Comments or Notes**

## **APPENDIX C**

### **FY2021 Constituent Concentrations**



















**APPENDIX D**

**FY2021 Laboratory Reports**

8/6/2020

Balance Hydrologics  
800 Baucroft Ave. Suite 101  
Berkeley, CA 94710  
Attn: Ben Trustman

OrderID: 20070784

Dear: Ben Trustman

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

The samples were received by WETLAB-Western Environmental Testing Laboratory in good condition on 7/23/2020. Additional comments are located on page 2 of this report.

If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,



Cory Baker  
QA Specialist

**SPARKS**

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
fax (775) 355-0817  
EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Report Comments

Balance Hydrologics - 20070784

### Specific Report Comments

None

### Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
- D -- Due to the sample matrix dilution was required in order to properly detect and report the analyte. The reporting limit has been adjusted accordingly.
- HT -- Sample analyzed beyond the accepted holding time
- J -- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit. The reported result should be considered an estimate.
- K -- The TPH Diesel Concentration reported here likely includes some heavier TPH Oil hydrocarbons reported in the TPH Diesel range as per EPA 8015.
- L -- The TPH Oil Concentration reported here likely includes some lighter TPH Diesel hydrocarbons reported in the TPH Oil range as per EPA 8015.
- M -- The matrix spike/matrix spike duplicate (MS/MSD) values for the analysis of this parameter were outside acceptance criteria due to probable matrix interference. The reported result should be considered an estimate.
- N -- There was insufficient sample available to perform a spike and/or duplicate on this analytical batch.
- NC -- Not calculated due to matrix interference
- QD -- The sample duplicate or matrix spike duplicate analysis demonstrated sample imprecision. The reported result should be considered an estimate.
- QL -- The result for the laboratory control sample (LCS) was outside WETLAB acceptance criteria and reanalysis was not possible. The reported data should be considered an estimate.
- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
- SC -- Spike recovery not calculated. Sample concentration >4X the spike amount; therefore, the spike could not be adequately recovered
- U -- The analyte was analyzed for, but was not detected above the level of the reported sample reporting/quantitation limit. The reported result should be considered an estimate.

### General Lab Comments

Per method recommendation (section 4.4), Samples analyzed by methods EPA 300.0 and EPA 300.1 have been filtered prior to analysis.

The following is an interpretation of the results from EPA method 9223B:

A result of zero (0) indicates absence for both coliform and Escherichia coli meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

Per federal regulation the holding time for the following parameters in aqueous/water samples is 15 minutes: Residual Chlorine, pH, Dissolved Oxygen, Sulfite.

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fax (702) 622-2868  
EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Analytical Report

**Balance Hydrologics**  
**800 Baucroft Ave. Suite 101**  
**Berkeley, CA 94710**  
**Attn:** Ben Trustman  
**Phone:** (510-704-1000) **Fax:** NoFax

**Date Printed:** 8/6/2020  
**OrderID:** 20070784

**Customer Sample ID:** H-19 (1)  
**WETLAB Sample ID:** 20070784-001

**Collect Date/Time:** 7/22/2020 17:15  
**Receive Date:** 7/23/2020 10:52

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b><u>General Chemistry</u></b>							
Orthophosphate, as P	SM 4500-P E	0.99	mg/L	5	0.10	7/23/2020	NV00925
Total Phosphorous as P	SM 4500-P E	1.9	mg/L	4	0.080	7/24/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	1000	mg/L	1	10	7/23/2020	NV00925
Total Nitrogen	Calc.	25	mg/L	1	2.0	8/4/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	760	mg/L	1	25	7/23/2020	NV00925
<b><u>Anions by Ion Chromatography</u></b>							
Nitrate Nitrogen	EPA 300.0	0.32	mg/L	1	0.030	7/24/2020	NV00925
Nitrite Nitrogen	EPA 300.0	0.27	mg/L	1	0.020	7/24/2020	NV00925
<b><u>Flow Injection Analyses</u></b>							
Total Kjeldahl Nitrogen	EPA 351.2	25	mg/L	5	2.0	8/4/2020	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 3 of 4

### SPARKS

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

### ELKO

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

### LAS VEGAS

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

## Western Environmental Testing Laboratory QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC20070882	Blank 1	Orthophosphate, as P	SM 4500-P E	ND			mg/L
QC20070940	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC20071006	Blank 1	Total Suspended Solids (TSS)	SM 2540D	ND			mg/L
QC20071019	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC20071038	Blank 1	Nitrate Nitrogen	EPA 300.0	ND			mg/L
		Nitrite Nitrogen	EPA 300.0	ND			mg/L
QC20080128	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC20070882	LCS 1	Orthophosphate, as P	SM 4500-P E	0.243	0.250	97	mg/L
QC20070940	LCS 1	Total Phosphorous as P	SM 4500-P E	0.242	0.250	97	mg/L
QC20071006	LCS 1	Total Suspended Solids (TSS)	SM 2540D	198	200	99	mg/L
QC20071006	LCS 2	Total Suspended Solids (TSS)	SM 2540D	197	200	99	mg/L
QC20071019	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	142	150	95	mg/L
QC20071019	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	142	150	95	mg/L
QC20071038	LCS 1	Nitrate Nitrogen	EPA 300.0	0.489	0.500	98	mg/L
		Nitrite Nitrogen	EPA 300.0	0.486	0.500	97	mg/L
QC20080128	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	0.916	1.00	92	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC20071006	Duplicate 1	Total Suspended Solids (TSS)	SM 2540D	20070668-002	ND	ND	mg/L	<1%
QC20071006	Duplicate 2	Total Suspended Solids (TSS)	SM 2540D	20070737-002	ND	ND	mg/L	<1%
QC20071019	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	20070770-003	1366	1338	mg/L	2 %
QC20071019	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	20070770-007	780	790	mg/L	1 %

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC20070882	MS 1	Orthophosphate, as P	SM 4500-P E	20070740-005	ND	0.254	0.253	0.25	mg/L	99	99	<1
QC20070940	MS 1	Total Phosphorous as P	SM 4500-P E	20070668-002	0.351	0.592	0.600	0.25	mg/L	96	99	1
QC20070940	MS 2	Total Phosphorous as P	SM 4500-P E	20070789-001	0.036	0.291	0.294	0.25	mg/L	102	103	1
QC20071038	MS 1	Nitrate Nitrogen	EPA 300.0	20070789-001	ND	0.514	0.517	0.5	mg/L	103	103	<1
		Nitrite Nitrogen	EPA 300.0	20070789-001	ND	0.122	0.125	0.125	mg/L	97	100	2
QC20080128	MS 1	Total Kjeldahl Nitrogen	EPA 351.2	20070789-001	0.500	0.970	0.914	0.5	mg/L	94	83	6

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 4 of 4

### SPARKS

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
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### ELKO

1084 Lamoille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
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EPA LAB ID: NV00926

### LAS VEGAS

3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932





# WETLAB

WESTERN ENVIRONMENTAL TESTING LABORATORY

Specializing in Soil, Hazardous Waste and Water Analysis.

475 E. Greg Street #119 | Sparks, Nevada 89431 | www.WETLaboratory.com  
tel (775) 355-0202 | fax (775) 355-0817  
1084 Lamoille Highway | Elko, Nevada 89801  
tel (775) 777-9933 | fax (775) 777-9933  
3230 Polaris Ave., Suite 4 | Las Vegas, Nevada 89102  
tel (702) 475-8899 | fax (702) 776-6152

WETLAB Order ID. 2007 0784

Sparks Control # \_\_\_\_\_

Elko Control # \_\_\_\_\_

LV Control # \_\_\_\_\_

Report \_\_\_\_\_

Due Date \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_

Client **Balance Hydrologics**

Address **On File**

City, State & Zip \_\_\_\_\_

Contact \_\_\_\_\_

Phone \_\_\_\_\_ Collector's Name \_\_\_\_\_

Fax \_\_\_\_\_ PWS/Project Name \_\_\_\_\_

P.O. Number \_\_\_\_\_ PWS/Project Number \_\_\_\_\_

Email **btrustman@balancehydro.com**

Billing Address (if different than Client Address)

Company \_\_\_\_\_

Address \_\_\_\_\_

City, State & Zip \_\_\_\_\_

Contact \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Email **btrustman@balancehydro.com**

Turnaround Time Requirements			
Standard	<input type="checkbox"/>		
5 Day* (25%)	<input type="checkbox"/>	72 Hour* (50%)	<input type="checkbox"/>
48 Hour* (100%)	<input type="checkbox"/>	24 Hour* (200%)	<input type="checkbox"/>
*Surcharges Will Apply			

Samples Collected From Which State?	Report Results Via
NV <input type="checkbox"/> CA <input type="checkbox"/>	PDF <input type="checkbox"/> EDD <input type="checkbox"/>
Other <input type="checkbox"/>	Other _____
Compliance Monitoring?	
Yes <input type="checkbox"/> No <input type="checkbox"/>	
Report to Regulatory Agency?	Standard QC Required?
Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>

SAMPLE ID/LOCATION	DATE	TIME	PRES TYPE	NO. OF CONTAINERS	Analyses Requested						Spl. No.
					Total Nitrogen	Nitrate	Total Phosphorus	Ortho Phosphorus	Total Suspended Solids	Total Dissolved Solids	
H-19 (1)	7/22/20	17:15			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
H-19 (1)	7/22/20	17:15									
H-19 (1)	7/22/20	17:15									
H-19 (1)	7/22/20	17:15									
H-19 (1)	7/22/20	17:15									
H-19 (1)	7/22/20	17:15									
H-19 (1)	7/22/20	17:15									
H-19 (1)	7/22/20	17:15									
H-19 (1)	7/22/20	17:15									

2007 2  
0784 1

Instructions/Comments/Special Requirements:

Sample Matrix Key\* DW = Drinking Water WW = Wastewater SW = Surface Water MW = Monitoring Well SD = Solid/Sludge SO = Soil HW = Hazardous Waste OTHER: \_\_\_\_\_

\*SAMPLE PRESERVATIVES: 1=Unpreserved 2=H2SO4 3=NaOH 4=HCl 5=HNO3 6=Na2S2O3 7=ZnOAc+NaOH 8=HCl/VOA Vial

Temp	Custody Seal	# of Containers	DATE	TIME	Samples Relinquished By	Samples Received By
11.8°C	Y N None	2	7/23/20	10:57	Sparks (Lachon)	
°C	Y N None					
°C	Y N None					
°C	Y N None					

WETLAB'S Standard Terms and Conditions apply unless written agreements specify otherwise. Payment terms are Net 30.

Client/Collector attests to the validity and authenticity of this (these) sample(s) and, is (are) aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636). \_\_\_\_\_ initial  
To the maximum extent permitted by law, the Client agrees to limit the liability of WETLAB for the Client's damages to the total compensation received, unless other agreements are made in writing. This limitation shall apply regardless of the cause of action or legal theory pled or asserted. \_\_\_\_\_ initial  
WETLAB will dispose of samples 90 days from sample receipt. Client may request a longer sample storage time for an additional fee. 301.2E  
Please contact your Project Manager for details. \_\_\_\_\_ initial

9/21/2020

Balance Hydrologics  
800 Baucroft Ave. Suite 101  
Berkeley, CA 94710  
Attn: Ben Trustman

OrderID: 20090170

Dear: Ben Trustman

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

The samples were received by WETLAB-Western Environmental Testing Laboratory in good condition on 9/3/2020. Additional comments are located on page 2 of this report.

If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,



Jennifer Delaney  
QA Manager

**SPARKS**

475 E. Greg Street, Suite 119  
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fax (775) 355-0817  
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Elko, Nevada 89801  
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3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Report Comments

---

Balance Hydrologics - 20090170

---

### Specific Report Comments

None

### Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
- D -- Due to the sample matrix dilution was required in order to properly detect and report the analyte. The reporting limit has been adjusted accordingly.
- HT -- Sample analyzed beyond the accepted holding time
- J -- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit. The reported result should be considered an estimate.
- K -- The TPH Diesel Concentration reported here likely includes some heavier TPH Oil hydrocarbons reported in the TPH Diesel range as per EPA 8015.
- L -- The TPH Oil Concentration reported here likely includes some lighter TPH Diesel hydrocarbons reported in the TPH Oil range as per EPA 8015.
- M -- The matrix spike/matrix spike duplicate (MS/MSD) values for the analysis of this parameter were outside acceptance criteria due to probable matrix interference. The reported result should be considered an estimate.
- N -- There was insufficient sample available to perform a spike and/or duplicate on this analytical batch.
- NC -- Not calculated due to matrix interference
- QD -- The sample duplicate or matrix spike duplicate analysis demonstrated sample imprecision. The reported result should be considered an estimate.
- QL -- The result for the laboratory control sample (LCS) was outside WETLAB acceptance criteria and reanalysis was not possible. The reported data should be considered an estimate.
- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
- SC -- Spike recovery not calculated. Sample concentration >4X the spike amount; therefore, the spike could not be adequately recovered
- U -- The analyte was analyzed for, but was not detected above the level of the reported sample reporting/quantitation limit. The reported result should be considered an estimate.

### General Lab Comments

Per method recommendation (section 4.4), Samples analyzed by methods EPA 300.0 and EPA 300.1 have been filtered prior to analysis.

The following is an interpretation of the results from EPA method 9223B:

A result of zero (0) indicates absence for both coliform and Escherichia coli meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

Per federal regulation the holding time for the following parameters in aqueous/water samples is 15 minutes: Residual Chlorine, pH, Dissolved Oxygen, Sulfite.

---

#### **SPARKS**

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fax (702) 622-2868  
EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Analytical Report

**Balance Hydrologics**  
**800 Baucroft Ave. Suite 101**  
**Berkeley, CA 94710**

**Attn:** Ben Trustman  
**Phone:** (510-704-1000) **Fax:** NoFax  
**PO\Project:** 213136

**Date Printed:** 9/21/2020  
**OrderID:** 20090170

**Customer Sample ID:** NTD @ ORD  
**WETLAB Sample ID:** 20090170-001

**Collect Date/Time:** 9/3/2020 10:40  
**Receive Date:** 9/3/2020 13:06

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.16	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.19	mg/L	1	0.020	9/8/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	23	mg/L	1	10	9/8/2020	NV00925
Total Nitrogen	Calc.	1.8	mg/L	1	0.22	9/10/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	440	mg/L	1	25	9/3/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.86	mg/L	1	0.020	9/10/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.90	mg/L	0.5	0.20	9/9/2020	NV00925

**Customer Sample ID:** SBC @ RHR  
**WETLAB Sample ID:** 20090170-002

**Collect Date/Time:** 9/3/2020 11:30  
**Receive Date:** 9/3/2020 13:06

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.22	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.28	mg/L	1	0.020	9/18/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	14	mg/L	1	10	9/8/2020	NV00925
Total Nitrogen	Calc.	0.79	mg/L	1	0.22	9/10/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	270	mg/L	1	25	9/3/2020	NV00925
<b>Microbiological Analyses</b>							
Total Coliform (MPN)	SM 9223B (Quantitray)	>2419.6	MPN/100ml	1	1.0	9/3/2020	NV00925
Escherichia Coli (MPN)	SM 9223B (Quantitray)	165.8	MPN/100ml	1	1.0	9/3/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.41	mg/L	1	0.020	9/10/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.39	M mg/L	0.5	0.20	9/9/2020	NV00925

**Customer Sample ID:** WC @ OVH  
**WETLAB Sample ID:** 20090170-003

**Collect Date/Time:** 9/3/2020 12:00  
**Receive Date:** 9/3/2020 13:06

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.034	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.052	mg/L	1	0.020	9/8/2020	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 3 of 5

### SPARKS

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
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 EPA LAB ID: NV00925 - ELAP No: 2523

### ELKO

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 Elko, Nevada 89801  
 tel (775) 777-9933  
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 EPA LAB ID: NV00926

### LAS VEGAS

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: WC @ OVH

Collect Date/Time: 9/3/2020 12:00

WETLAB Sample ID: 20090170-003

Receive Date: 9/3/2020 13:06

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
Total Suspended Solids (TSS)	SM 2540D	13	mg/L	1	10	9/8/2020	NV00925
Total Nitrogen	Calc.	ND	mg/L	1	0.22	9/10/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	57	mg/L	1	25	9/3/2020	NV00925
<b>Microbiological Analyses</b>							
Total Coliform (MPN)	SM 9223B (Quantitray)	>2419.6	MPN/100ml	1	1.0	9/3/2020	NV00925
Escherichia Coli (MPN)	SM 9223B (Quantitray)	90.5	MPN/100ml	1	1.0	9/3/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	ND	mg/L	1	0.020	9/10/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	ND	mg/L	0.5	0.20	9/9/2020	NV00925

Customer Sample ID: SBC @ NAR

Collect Date/Time: 9/3/2020 12:35

WETLAB Sample ID: 20090170-004

Receive Date: 9/3/2020 13:06

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.34	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.35	mg/L	1	0.020	9/8/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	12	mg/L	1	10	9/8/2020	NV00925
Total Nitrogen	Calc.	0.43	mg/L	1	0.22	9/10/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	690	mg/L	1	25	9/3/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	ND	mg/L	1	0.020	9/10/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.42	mg/L	0.5	0.20	9/9/2020	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected &lt;RL or &lt;MDL (if listed)

Page 4 of 5

**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamaille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC20090172	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC20090173	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC20090182	Blank 1	Orthophosphate, as P	SM 4500-P E	ND			mg/L
QC20090233	Blank 1	Total Coliform (MPN)	SM 9223B (Quant	ND			MPN/100ml
		Escherichia Coli (MPN)	SM 9223B (Quant	ND			MPN/100ml
QC20090289	Blank 1	Total Suspended Solids (TSS)	SM 2540D	ND			mg/L
QC20090294	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC20090360	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L
QC20090447	Blank 1	Nitrate + Nitrite Nitrogen	EPA 353.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC20090172	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	138	150	92	mg/L
QC20090172	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	140	150	93	mg/L
QC20090173	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	148	150	99	mg/L
QC20090173	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	142	150	95	mg/L
QC20090182	LCS 1	Orthophosphate, as P	SM 4500-P E	0.251	0.250	100	mg/L
QC20090289	LCS 1	Total Suspended Solids (TSS)	SM 2540D	197	200	98	mg/L
QC20090289	LCS 2	Total Suspended Solids (TSS)	SM 2540D	198	200	99	mg/L
QC20090294	LCS 1	Total Phosphorous as P	SM 4500-P E	0.223	0.250	89	mg/L
QC20090360	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	0.972	1.00	97	mg/L
QC20090447	LCS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	1.08	1.00	108	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC20090172	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	20090096-004	746	698	mg/L	7 %
QC20090172	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	20090170-004	692	648	mg/L	7 %
QC20090173	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	20090096-006	698	712	mg/L	2 %
QC20090173	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	20090096-008	706	682	mg/L	4 %
QC20090289	Duplicate 1	Total Suspended Solids (TSS)	SM 2540D	20090135-002	ND	ND	mg/L	<1%
QC20090289	Duplicate 2	Total Suspended Solids (TSS)	SM 2540D	20090249-001	16.7	16.3	mg/L	2 %

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC20090182	MS 1	Orthophosphate, as P	SM 4500-P E	20090072-002	1.99	3.15	3.15	0.25	mg/L	92	93	<1
QC20090294	MS 1	Total Phosphorous as P	SM 4500-P E	20090067-002	0.047	0.298	0.304	0.25	mg/L	100	103	2
QC20090294	MS 2	Total Phosphorous as P	SM 4500-P E	20090161-001	3.84	SC 4.16	4.18	0.25	mg/L	NC	NC	NC
QC20090360	MS 1	Total Kjeldahl Nitrogen	EPA 351.2	20090029-001	ND	M 0.457	0.463	0.5	mg/L	NC	NC	NC
QC20090360	MS 2	Total Kjeldahl Nitrogen	EPA 351.2	20090170-002	0.387	M 1.02	1.01	0.5	mg/L	NC	NC	NC
QC20090447	MS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	20090046-001	0.840	M 6.38	6.38	1	mg/L	NC	NC	NC
QC20090447	MS 2	Nitrate + Nitrite Nitrogen	EPA 353.2	20090205-001	14.4	36.1	36.0	1	mg/L	108	108	<1

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 5 of 5

### SPARKS

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
fax (775) 355-0817  
EPA LAB ID: NV00925 - ELAP No: 2523

### ELKO

1084 Lamoille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
EPA LAB ID: NV00926

### LAS VEGAS

3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932



# WETLAB

WESTERN ENVIRONMENTAL TESTING LABORATORY

Specializing in Soil, Hazardous Waste and Water Analysis.

475 E. Greg Street #119 | Sparks, Nevada 89431 | www.WETLaboratory.com  
tel (775) 355-0202 | fax (775) 355-0817  
1084 Lamoille Highway | Elko, Nevada 89801  
tel (775) 777-9933 | fax (775) 777-9933  
3230 Polaris Ave., Suite 4 | Las Vegas, Nevada 89102  
tel (702) 475-8899 | fax (702) 776-6152

WETLAB Order ID: 20090170

Sparks \_\_\_\_\_  
Elko \_\_\_\_\_  
LV \_\_\_\_\_  
Report Due Date \_\_\_\_\_  
Page 1 of 1

Client Balance Hydrologics  
 Address ON File  
 City, State & Zip \_\_\_\_\_  
 Contact Ben Trustman  
 Phone \_\_\_\_\_ Collector's Name \_\_\_\_\_  
 Fax \_\_\_\_\_ Project 213136  
 P.O. Number \_\_\_\_\_ PWS Number \_\_\_\_\_

**Turnaround Time Requirements**  
 Standard X  
 5 Day\* (25%) \_\_\_\_\_ 72 Hour\* (50%) \_\_\_\_\_  
 48 Hour\* (100%) \_\_\_\_\_ 24 Hour\* (200%) \_\_\_\_\_  
 \*Surcharges Will Apply

Samples Collected From Which State?  
 NV X CA \_\_\_\_\_  
 Other \_\_\_\_\_

Report Results Via  
 PDF (X) EDD \_\_\_\_\_  
 Other Excel

Compliance Monitoring?  
 Yes \_\_\_\_\_ No (X)

Report to Regulatory Agency?  
 Yes \_\_\_\_\_ No (X) Standard QC Required?  
 Yes \_\_\_\_\_ No \_\_\_\_\_

Email btrustman@balancehydro.com  
**Billing Address (if different than Client Address)**  
 Company Balance Hydrologics  
 Address \_\_\_\_\_  
 City, State & Zip ON File  
 Contact \_\_\_\_\_  
 Phone \_\_\_\_\_ Fax \_\_\_\_\_  
 Email \_\_\_\_\_

NO. OF CONTAINERS	Analyses Requested										Spl. No.	
	Total N	Total P	TSS	TDS	Ortho P	Ecol						
2	X	X	X	X	X							
3	X	X	X	X	X							
3	X	X	X	X	X							
2	X	X	X	X	X							

SAMPLE ID/LOCATION	DATE	TIME	PRES TYPE *
<u>NTD @ ORD</u>	<u>9/3/20</u>	<u>10:40</u>	
<u>SBL @ RHR</u>		<u>11:30</u>	
<u>WL @ OVH</u>		<u>12:00</u>	
<u>SBL @ NAR</u>		<u>12:35</u>	

Instructions/Comments/Special Requirements:

Sample Matrix Key\*\* DW = Drinking Water WW = Wastewater SW = Surface Water MW = Monitoring Well SD = Solid/Sludge SO = Soil HW = Hazardous Waste OTHER: \_\_\_\_\_

\*SAMPLE PRESERVATIVES: 1=Unpreserved 2=H2SO4 3=NaOH 4=HCl 5=HNO3 6=Na2S2O3 7=ZnOAc+NaOH 8=NH4Cl 9=H3PO4

Temp	On Ice	Custody Seal	DATE	TIME	Samples Relinquished By	Samples Received By
<u>9.9°C</u>	<u>(Y/N)</u>	<u>(Y/N)</u>	<u>9-3-20</u>	<u>13:06</u>	<u>[Signature]</u>	<u>[Signature]</u>
°C	Y / N	Y / N				
°C	Y / N	Y / N				
°C	Y / N	Y / N				

WETLAB'S Standard Terms and Conditions apply unless written agreements specify otherwise. Payment terms are Net 30.

Client/Collector attests to the validity and authenticity of this (these) sample(s) and, is (are) aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636). \_\_\_\_\_ initial  
 To the maximum extent permitted by law, the Client agrees to limit the liability of WETLAB for the Client's damages to the total compensation received, unless other agreements are made in writing. This limitation shall apply regardless of the cause of action or legal theory pled or asserted. \_\_\_\_\_ initial  
 WETLAB will dispose of samples 90 days from sample receipt. Client may request a longer sample storage time for an additional fee. 301.2E  
 Please contact your Project Manager for details. \_\_\_\_\_ initial

9/21/2020

Balance Hydrologics  
800 Baucroft Ave. Suite 101  
Berkeley, CA 94710  
Attn: Ben Trustman

OrderID: 20090235

Dear: Ben Trustman

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

The samples were received by WETLAB-Western Environmental Testing Laboratory in good condition on 9/4/2020. Additional comments are located on page 2 of this report.

If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,



Jennifer Delaney  
QA Manager

**SPARKS**

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
fax (775) 355-0817  
EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamaille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932



# Western Environmental Testing Laboratory

## Report Comments

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Balance Hydrologics - 20090235

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### Specific Report Comments

The result for Orthophosphate on samples 20090235-001 and 002 is higher than expected, especially when compared to the Total Phosphorus result. Due to concentrations in the sample it can be inferred that all of the Total Phosphorus is Orthophosphate based.

### Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
- D -- Due to the sample matrix dilution was required in order to properly detect and report the analyte. The reporting limit has been adjusted accordingly.
- HT -- Sample analyzed beyond the accepted holding time
- J -- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit. The reported result should be considered an estimate.
- K -- The TPH Diesel Concentration reported here likely includes some heavier TPH Oil hydrocarbons reported in the TPH Diesel range as per EPA 8015.
- L -- The TPH Oil Concentration reported here likely includes some lighter TPH Diesel hydrocarbons reported in the TPH Oil range as per EPA 8015.
- M -- The matrix spike/matrix spike duplicate (MS/MSD) values for the analysis of this parameter were outside acceptance criteria due to probable matrix interference. The reported result should be considered an estimate.
- N -- There was insufficient sample available to perform a spike and/or duplicate on this analytical batch.
- NC -- Not calculated due to matrix interference
- QD -- The sample duplicate or matrix spike duplicate analysis demonstrated sample imprecision. The reported result should be considered an estimate.
- QL -- The result for the laboratory control sample (LCS) was outside WETLAB acceptance criteria and reanalysis was not possible. The reported data should be considered an estimate.
- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
- SC -- Spike recovery not calculated. Sample concentration >4X the spike amount; therefore, the spike could not be adequately recovered
- U -- The analyte was analyzed for, but was not detected above the level of the reported sample reporting/quantitation limit. The reported result should be considered an estimate.

### General Lab Comments

Per method recommendation (section 4.4), Samples analyzed by methods EPA 300.0 and EPA 300.1 have been filtered prior to analysis.

The following is an interpretation of the results from EPA method 9223B:

A result of zero (0) indicates absence for both coliform and Escherichia coli meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

Per federal regulation the holding time for the following parameters in aqueous/water samples is 15 minutes: Residual Chlorine, pH, Dissolved Oxygen, Sulfite.

---

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475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
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1084 Lamoille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
EPA LAB ID: NV00926

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3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Analytical Report

**Balance Hydrologics**  
**800 Baucroft Ave. Suite 101**  
**Berkeley, CA 94710**

**Attn:** Ben Trustman

**Phone:** (510-704-1000) **Fax:** NoFax

**PO\Project:** 213136

**Date Printed:** 9/21/2020

**OrderID:** 20090235

**Customer Sample ID:** CC@CB  
**WETLAB Sample ID:** 20090235-001

**Collect Date/Time:** 9/4/2020 08:20

**Receive Date:** 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b><u>General Chemistry</u></b>							
Orthophosphate, as P	SM 4500-P E	0.38	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.37	mg/L	1	0.020	9/9/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	22	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	2.1	mg/L	1	0.70	9/9/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	1800	mg/L	1	25	9/4/2020	NV00925
<b><u>Anions by Ion Chromatography</u></b>							
Nitrate Nitrogen	EPA 300.0	1.4	mg/L	10	0.30	9/4/2020	NV00925
Nitrite Nitrogen	EPA 300.0	ND	D mg/L	10	0.20	9/4/2020	NV00925
<b><u>Flow Injection Analyses</u></b>							
Total Kjeldahl Nitrogen	EPA 351.2	0.71	mg/L	0.5	0.20	9/9/2020	NV00925

### SPARKS

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

### ELKO

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

### LAS VEGAS

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: CC@W4  
 WETLAB Sample ID: 20090235-002

Collect Date/Time: 9/4/2020 08:40

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.37	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.32	mg/L	1	0.020	9/9/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	17	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	1.9	mg/L	1	0.70	9/9/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	1800	mg/L	1	25	9/4/2020	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	1.4	mg/L	10	0.30	9/4/2020	NV00925
Nitrite Nitrogen	EPA 300.0	ND	D,QD mg/L	10	0.20	9/4/2020	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	0.58	mg/L	0.5	0.20	9/9/2020	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 4 of 25

**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: AC@TR  
 WETLAB Sample ID: 20090235-003

Collect Date/Time: 9/4/2020 09:05

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.075	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.094	mg/L	1	0.020	9/9/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	31	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	0.32	mg/L	1	0.22	9/10/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	190	mg/L	1	25	9/4/2020	NV00925
<b>Microbiological Analyses</b>							
Total Coliform (MPN)	SM 9223B (Quantitray)	>2419.6	MPN/100ml	1	1.0	9/4/2020	NV00925
Escherichia Coli (MPN)	SM 9223B (Quantitray)	49.6	MPN/100ml	1	1.0	9/4/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	ND	mg/L	1	0.020	9/10/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.30	mg/L	0.5	0.20	9/9/2020	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 5 of 25

**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: TC@SMP  
 WETLAB Sample ID: 20090235-004

Collect Date/Time: 9/4/2020 10:10

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.088	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.11	mg/L	1	0.020	9/9/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	23	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	0.49	mg/L	1	0.22	9/10/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	ND	mg/L	1	25	9/4/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.033	mg/L	1	0.020	9/10/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.46	mg/L	0.5	0.20	9/9/2020	NV00925

**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: EC@KL  
 WETLAB Sample ID: 20090235-005

Collect Date/Time: 9/4/2020 11:15

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.076	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.094	mg/L	1	0.020	9/9/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	24	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	0.74	mg/L	1	0.22	9/10/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	42	mg/L	1	25	9/4/2020	NV00925
<b>Microbiological Analyses</b>							
Total Coliform (MPN)	SM 9223B (Quantitray)	>2419.6	MPN/100ml	1	1.0	9/4/2020	NV00925
Escherichia Coli (MPN)	SM 9223B (Quantitray)	178.9	MPN/100ml	1	1.0	9/4/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.37 M	mg/L	1	0.020	9/10/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.37	mg/L	0.5	0.20	9/9/2020	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 7 of 25

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475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: NTD@BFD (1)

Collect Date/Time: 9/3/2020 12:00

WETLAB Sample ID: 20090235-006

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.15	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.28	mg/L	1	0.020	9/9/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	110	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	2.7	mg/L	1	0.22	9/10/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	520	mg/L	1	25	9/4/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	1.0	mg/L	1	0.020	9/10/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	1.7	mg/L	0.5	0.20	9/9/2020	NV00925

**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: NTD@BFD (2)

Collect Date/Time: 9/3/2020 18:00

WETLAB Sample ID: 20090235-007

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.12	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.12	mg/L	1	0.020	9/9/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	120	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	2.6	mg/L	1	0.22	9/10/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	420	mg/L	1	25	9/4/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.99	mg/L	1	0.020	9/10/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	1.6	mg/L	0.5	0.20	9/9/2020	NV00925

**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932



Customer Sample ID: NTD@BFD (3)

Collect Date/Time: 9/4/2020 00:00

WETLAB Sample ID: 20090235-008

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.12	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.13	mg/L	1	0.020	9/9/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	97	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	2.2	mg/L	1	0.22	9/10/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	390	mg/L	1	25	9/4/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.90	mg/L	1	0.020	9/10/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	1.3	M mg/L	0.5	0.20	9/9/2020	NV00925

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475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: NTD@BFD (4)  
 WETLAB Sample ID: 20090235-009

Collect Date/Time: 9/4/2020 06:00

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.12	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.21	mg/L	1	0.020	9/9/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	79	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	2.5	mg/L	1	0.22	9/11/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	520	mg/L	1	25	9/4/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.97	mg/L	1	0.020	9/11/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	1.5	mg/L	0.5	0.20	9/9/2020	NV00925

**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: YD@SBC (1)  
 WETLAB Sample ID: 20090235-010

Collect Date/Time: 9/3/2020 12:00

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.047	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.14	mg/L	1	0.020	9/9/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	39	mg/L	1	10	9/8/2020	NV00925
Total Nitrogen	Calc.	1.3	mg/L	1	0.22	9/11/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	280	mg/L	1	25	9/8/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.071	mg/L	1	0.020	9/11/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	1.2	mg/L	0.5	0.20	9/9/2020	NV00925

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475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: YD@SBC (2)  
 WETLAB Sample ID: 20090235-011

Collect Date/Time: 9/3/2020 18:00

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.040	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.12	mg/L	1	0.020	9/9/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	29	mg/L	1	10	9/8/2020	NV00925
Total Nitrogen	Calc.	1.1	mg/L	1	0.22	9/11/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	250	mg/L	1	25	9/8/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.096	mg/L	1	0.020	9/11/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.95	mg/L	0.5	0.20	9/9/2020	NV00925

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475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: YD@SBC (3)  
 WETLAB Sample ID: 20090235-012

Collect Date/Time: 9/4/2020 00:00

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.047	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.078	mg/L	1	0.020	9/9/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	36	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	1.2	mg/L	1	0.22	9/11/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	260	mg/L	1	25	9/8/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.12	mg/L	1	0.020	9/11/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	1.1	mg/L	0.5	0.20	9/9/2020	NV00925

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475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: YD@SBC (4)  
 WETLAB Sample ID: 20090235-013

Collect Date/Time: 9/4/2020 06:00

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.056	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.13	mg/L	1	0.020	9/9/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	39	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	1.3	mg/L	1	0.22	9/11/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	260	mg/L	1	25	9/8/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.11	mg/L	1	0.020	9/11/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	1.2	mg/L	0.5	0.20	9/9/2020	NV00925

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475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: BS@SBC (1)  
 WETLAB Sample ID: 20090235-014

Collect Date/Time: 9/3/2020 12:00

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.11	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.20	mg/L	1	0.020	9/9/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	51	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	1.4	mg/L	1	0.22	9/11/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	200	mg/L	1	25	9/8/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.38	mg/L	1	0.020	9/11/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	1.0	mg/L	0.5	0.20	9/9/2020	NV00925

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475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: BS@SBC (2)  
 WETLAB Sample ID: 20090235-015

Collect Date/Time: 9/3/2020 18:00

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.13	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.18	mg/L	1	0.020	9/9/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	32	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	1.1	mg/L	1	0.22	9/11/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	230	mg/L	1	25	9/8/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.41	M mg/L	1	0.020	9/11/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.69	mg/L	0.5	0.20	9/9/2020	NV00925

**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932



Customer Sample ID: BS@SBC (3)  
 WETLAB Sample ID: 20090235-016

Collect Date/Time: 9/4/2020 00:00

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.13	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.17	mg/L	1	0.020	9/11/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	32	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	1.1	mg/L	1	0.22	9/11/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	200	mg/L	1	25	9/8/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.43	mg/L	1	0.020	9/11/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.67	mg/L	0.5	0.20	9/9/2020	NV00925

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475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: BS@SBC (4)  
 WETLAB Sample ID: 20090235-017

Collect Date/Time: 9/4/2020 06:00

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.14	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.20	mg/L	1	0.020	9/11/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	40	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	1.2	mg/L	1	0.22	9/11/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	210	mg/L	1	25	9/8/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.39	mg/L	1	0.020	9/11/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.80	mg/L	0.5	0.20	9/9/2020	NV00925

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475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: SBC@CWW (1)

Collect Date/Time: 9/3/2020 12:00

WETLAB Sample ID: 20090235-018

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.21	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.20	mg/L	1	0.020	9/11/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	88	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	1.5	mg/L	1	0.22	9/11/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	400	mg/L	1	25	9/8/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.11	mg/L	1	0.020	9/11/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	1.4	mg/L	0.5	0.20	9/9/2020	NV00925

**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: SBC@CWW (2)

Collect Date/Time: 9/3/2020 18:00

WETLAB Sample ID: 20090235-019

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.19	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.28	mg/L	1	0.020	9/11/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	44	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	0.97	mg/L	1	0.22	9/11/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	410	mg/L	1	25	9/8/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.067	mg/L	1	0.020	9/11/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.90	mg/L	0.5	0.20	9/9/2020	NV00925

**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: SBC@CWW (3)

Collect Date/Time: 9/4/2020 00:00

WETLAB Sample ID: 20090235-020

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.21	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.26	mg/L	1	0.020	9/11/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	34	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	0.78	mg/L	1	0.22	9/11/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	440	mg/L	1	25	9/8/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.14	mg/L	1	0.020	9/11/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.64	mg/L	0.5	0.20	9/9/2020	NV00925

**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: SBC@CWW (4)

Collect Date/Time: 9/4/2020 06:00

WETLAB Sample ID: 20090235-021

Receive Date: 9/4/2020 15:05

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.24	mg/L	1	0.020	9/4/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.31	mg/L	1	0.020	9/11/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	34	mg/L	1	10	9/9/2020	NV00925
Total Nitrogen	Calc.	0.90	mg/L	1	0.22	9/11/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	450	mg/L	1	25	9/8/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.15	mg/L	1	0.020	9/11/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.75	mg/L	0.5	0.20	9/9/2020	NV00925

**SPARKS**

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 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

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 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

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 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC20090232	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC20090236	Blank 1	Orthophosphate, as P	SM 4500-P E	ND			mg/L
QC20090236	Blank 2	Orthophosphate, as P	SM 4500-P E	ND			mg/L
QC20090257	Blank 1	Total Coliform (MPN)	SM 9223B (Quant	ND			MPN/100ml
		Escherichia Coli (MPN)	SM 9223B (Quant	ND			MPN/100ml
QC20090280	Blank 1	Nitrate Nitrogen	EPA 300.0	ND			mg/L
		Nitrite Nitrogen	EPA 300.0	ND			mg/L
QC20090281	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC20090282	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC20090289	Blank 1	Total Suspended Solids (TSS)	SM 2540D	ND			mg/L
QC20090331	Blank 1	Total Suspended Solids (TSS)	SM 2540D	ND			mg/L
QC20090333	Blank 1	Total Suspended Solids (TSS)	SM 2540D	ND			mg/L
QC20090354	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC20090360	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L
QC20090361	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L
QC20090450	Blank 1	Nitrate + Nitrite Nitrogen	EPA 353.2	ND			mg/L
QC20090490	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC20090498	Blank 1	Nitrate + Nitrite Nitrogen	EPA 353.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC20090232	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	136	150	91	mg/L
QC20090232	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	137	150	91	mg/L
QC20090236	LCS 1	Orthophosphate, as P	SM 4500-P E	0.248	0.250	99	mg/L
QC20090236	LCS 2	Orthophosphate, as P	SM 4500-P E	0.245	0.250	98	mg/L
QC20090280	LCS 1	Nitrate Nitrogen	EPA 300.0	0.487	0.500	97	mg/L
		Nitrite Nitrogen	EPA 300.0	0.485	0.500	97	mg/L
QC20090281	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	138	150	92	mg/L
QC20090281	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	153	150	102	mg/L
QC20090282	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	136	150	91	mg/L
QC20090282	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	145	150	97	mg/L
QC20090289	LCS 1	Total Suspended Solids (TSS)	SM 2540D	197	200	98	mg/L
QC20090289	LCS 2	Total Suspended Solids (TSS)	SM 2540D	198	200	99	mg/L
QC20090331	LCS 1	Total Suspended Solids (TSS)	SM 2540D	198	200	99	mg/L
QC20090331	LCS 2	Total Suspended Solids (TSS)	SM 2540D	196	200	98	mg/L
QC20090333	LCS 1	Total Suspended Solids (TSS)	SM 2540D	198	200	99	mg/L
QC20090333	LCS 2	Total Suspended Solids (TSS)	SM 2540D	198	200	99	mg/L
QC20090354	LCS 1	Total Phosphorous as P	SM 4500-P E	0.234	0.250	94	mg/L
QC20090360	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	0.972	1.00	97	mg/L
QC20090361	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	1.05	1.00	105	mg/L
QC20090450	LCS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	1.08	1.00	108	mg/L
QC20090490	LCS 1	Total Phosphorous as P	SM 4500-P E	0.232	0.250	93	mg/L
QC20090498	LCS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	1.07	1.00	107	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC20090232	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	20090158-002	826	892	mg/L	8 %
QC20090232	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	20090158-005	1040	944	mg/L	10 %
QC20090281	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	20090125-001	1378	1394	mg/L	1 %

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 24 of 25

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EPA LAB ID: NV00932

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC20090281	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	20090235-018	403	429	mg/L	6 %
QC20090282	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	20090249-001	480	528	mg/L	10 %
QC20090282	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	20090235-021	451	437	mg/L	3 %
QC20090289	Duplicate 1	Total Suspended Solids (TSS)	SM 2540D	20090135-002	ND	ND	mg/L	<1%
QC20090289	Duplicate 2	Total Suspended Solids (TSS)	SM 2540D	20090249-001	16.7	16.3	mg/L	2 %
QC20090331	Duplicate 1	Total Suspended Solids (TSS)	SM 2540D	20090282-002	ND	ND	mg/L	<1%
QC20090331	Duplicate 2	Total Suspended Solids (TSS)	SM 2540D	20090235-002	16.7	17.7	mg/L	6 %
QC20090333	Duplicate 1	Total Suspended Solids (TSS)	SM 2540D	20090282-003	ND	ND	mg/L	<1%
QC20090333	Duplicate 2	Total Suspended Solids (TSS)	SM 2540D	20090236-002	ND	ND	mg/L	NA

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC20090236	MS 1	Orthophosphate, as P	SM 4500-P E	20090235-001	0.377	0.608	0.607	0.25	mg/L	93	92	<1
QC20090236	MS 2	Orthophosphate, as P	SM 4500-P E	20090235-011	0.040	0.267	0.265	0.25	mg/L	91	90	<1
QC20090236	MS 3	Orthophosphate, as P	SM 4500-P E	20090235-021	0.235	0.465	0.461	0.25	mg/L	92	91	<1
QC20090280	MS 1	Nitrate Nitrogen	EPA 300.0	20090235-002	1.35	6.34	6.38	0.5	mg/L	100	101	<1
		Nitrite Nitrogen	EPA 300.0	20090235-002	ND	D,Q 1.10	1.40	0.125	mg/L	88	112	24
QC20090354	MS 1	Total Phosphorous as P	SM 4500-P E	20090235-001	0.366	0.609	0.620	0.25	mg/L	97	102	2
QC20090354	MS 2	Total Phosphorous as P	SM 4500-P E	20090235-010	0.143	0.384	0.402	0.25	mg/L	96	103	5
QC20090360	MS 1	Total Kjeldahl Nitrogen	EPA 351.2	20090029-001	ND	M 0.457	0.463	0.5	mg/L	NC	NC	NC
QC20090360	MS 2	Total Kjeldahl Nitrogen	EPA 351.2	20090170-002	0.387	M 1.02	1.01	0.5	mg/L	NC	NC	NC
QC20090361	MS 1	Total Kjeldahl Nitrogen	EPA 351.2	20090235-008	1.33	M 2.20	2.34	0.5	mg/L	NC	NC	NC
QC20090361	MS 2	Total Kjeldahl Nitrogen	EPA 351.2	20090235-018	1.43	1.98	2.04	0.5	mg/L	110	122	3
QC20090450	MS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	20090220-003	ND	M 1.20	1.17	1	mg/L	NC	NC	NC
QC20090450	MS 2	Nitrate + Nitrite Nitrogen	EPA 353.2	20090235-005	0.369	M 1.51	1.53	1	mg/L	NC	NC	NC
QC20090490	MS 1	Total Phosphorous as P	SM 4500-P E	20090223-004	ND	0.228	0.237	0.25	mg/L	91	95	4
QC20090490	MS 2	Total Phosphorous as P	SM 4500-P E	20090235-019	0.283	0.525	0.486	0.25	mg/L	97	81	8
QC20090498	MS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	20090210-001	1.18	6.67	6.69	1	mg/L	110	110	<1
QC20090498	MS 2	Nitrate + Nitrite Nitrogen	EPA 353.2	20090235-015	0.409	M 1.56	1.53	1	mg/L	NC	NC	NC

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 25 of 25

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# WETLAB

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3230 Polaris Ave., Suite 4 | Las Vegas, Nevada 89102  
tel (702) 475-8899 | fax (702) 776-6152

WETLAB Order ID. 20090235

Sparks \_\_\_\_\_

Elko \_\_\_\_\_

LV \_\_\_\_\_

Report \_\_\_\_\_

Due Date \_\_\_\_\_

Page 1 of 3

Client Balance Hydrologics

Address \_\_\_\_\_

City, State & Zip ON File

Contact Ben Trustman

Phone \_\_\_\_\_ Collector's Name \_\_\_\_\_

Fax \_\_\_\_\_ Project 213136

P.O. Number \_\_\_\_\_ PWS Number \_\_\_\_\_

**Turnaround Time Requirements**

Standard X

5 Day\* (25%) \_\_\_\_\_ 72 Hour\* (50%) \_\_\_\_\_

48 Hour\* (100%) \_\_\_\_\_ 24 Hour\* (200%) \_\_\_\_\_

\*Surcharges Will Apply

Samples Collected From Which State?  
NV  CA \_\_\_\_\_  
Other \_\_\_\_\_

Compliance Monitoring?  
Yes \_\_\_\_\_ No

Report to Regulatory Agency?  
Yes \_\_\_\_\_ No

Report Results Via  
PDF  EDD \_\_\_\_\_  
Other Excel

Standard QC Required?  
Yes  No \_\_\_\_\_

Email benjamin.trustman@balancehydro.com

**Billing Address (if different than Client Address)**

Company Balance Hydrologics

Address on file

City, State & Zip \_\_\_\_\_

Contact \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_

S A M P L E T Y P E S	NO. OF C O N T A I N E R S	Analyses Requested										Spl. No.	
		Total N	Total P	Ortho P	TSS	TDS	NO3	e.coli					
	2	X	X	X	X	X							
	2	X	X	X	X	X							
	3	X	X	X	X	X		X					
	2	X	X	X	X	X							
	3	X	X	X	X	X		X					
	2	X	X	X	X	X						2009	2
	2	X	X	X	X	X						0235	21
	2	X	X	X	X	X							

SAMPLE ID/LOCATION	DATE	TIME	PRES TYPE *	SAMPLE TYPE **	Total N	Total P	Ortho P	TSS	TDS	NO3	e.coli			Spl. No.
CC @ CB	9/4/20	8:20		AN	X	X	X	X	X					
CC @ W4	9/4/20	8:40			X	X	X	X	X					
AC @ TR	9/4/20	9:05			X	X	X	X	X		X			
TC @ SMP	9/4/20	10:10			X	X	X	X	X					
EC @ KL	9/4/20	11:15			X	X	X	X	X		X			
NTD @ BFD (1)	9/3/20	12:00			X	X	X	X	X				2009	2
NTD @ BFD (2)	9/3/20	14:00			X	X	X	X	X				0235	21
NTD @ BFD (3)	9/4/20	0:00			X	X	X	X	X					
NTD @ BFD (4)	9/4/20	6:00			X	X	X	X	X					

Instructions/Comments/Special Requirements:

Sample Matrix Key\*\* DW = Drinking Water WW = Wastewater SW = Surface Water MW = Monitoring Well SD = Solid/Sludge SO = Soil HW = Hazardous Waste OTHER: \_\_\_\_\_

\*SAMPLE PRESERVATIVES: 1=Unpreserved 2=H2SO4 3=NaOH 4=HCl 5=HNO3 6=Na2S2O3 7=ZnOAc+NaOH 8=NH4Cl 9=H3PO4

Temp	On Ice	Custody Seal	DATE	TIME	Samples Relinquished By	Samples Received By
15°C	<input checked="" type="checkbox"/> N	Y / N	9-4-20	13:05		
°C	Y / N	Y / N				
°C	Y / N	Y / N				
°C	Y / N	Y / N				

WETLAB'S Standard Terms and Conditions apply unless written agreements specify otherwise. Payment terms are Net 30.

Client/Collector attests to the validity and authenticity of this (these) sample(s) and, is (are) aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636). \_\_\_\_\_ initial

To the maximum extent permitted by law, the Client agrees to limit the liability of WETLAB for the Client's damages to the total compensation received, unless other agreements are made in writing. This limitation shall apply regardless of the cause of action or legal theory pled or asserted. \_\_\_\_\_ initial

WETLAB will dispose of samples 90 days from sample receipt. Client may request a longer sample storage time for an additional fee. 301.2E

Please contact your Project Manager for details. \_\_\_\_\_ initial



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3230 Polaris Ave., Suite 4 | Las Vegas, Nevada 89102  
tel (702) 475-8899 | fax (702) 776-6152

WETLAB Order ID. 20090235

Sparks \_\_\_\_\_

Elko \_\_\_\_\_

LV \_\_\_\_\_

Report \_\_\_\_\_

Due Date \_\_\_\_\_

Page 2 of 3

Client <u>Balance Hydrologics</u>		Turnaround Time Requirements	
Address _____		Standard _____	
City, State & Zip _____		5 Day* (25%) _____ 72 Hour* (50%) _____	
Contact <u>Ben</u>		48 Hour* (100%) _____ 24 Hour* (200%) _____	
Phone _____		*Surcharges Will Apply	
Collector's Name _____		Samples Collected From Which State?	
Fax _____		NV <input checked="" type="checkbox"/> CA _____	
Project <u>213136</u>		Other _____	
PWS Number _____		Compliance Monitoring?	
		Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>	
		Report to Regulatory Agency?	
		Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>	

Email _____		Analyses Requested	
Billing Address (if different than Client Address)		S A M P L E T Y P E S	
Company _____		NO. OF C O N T A I N E R S	
Address _____		Total N	
City, State & Zip _____		Total P	
Contact _____		Ortho P	
Phone _____ Fax _____		TES	
Email _____		TDS	

SAMPLE ID/LOCATION	DATE	TIME	PRES TYPE *	SAMPLE TYPE **	NO. OF CONTAINERS	Spl. No.
YD @ SBC (1)	9/3/20	12:00		2	X	
YD @ SBC (2)	9/3/20	18:00		2	X	
YD @ SBC (3)	9/4/20	0:00		2	X	
YD @ SBC (4)	9/4/20	6:00		2	X	
BS @ SBC (1)	9/3/20	12:00		2		
BS @ SBC (2)	9/3/20	18:00		2		
BS @ SBC (3)	9/4/20	0:00		2		
BS @ SBC (4)	9/4/20	6:00		2		

Instructions/Comments/Special Requirements:

Sample Matrix Key\*\* DW = Drinking Water WW = Wastewater SW = Surface Water MW = Monitoring Well SD = Solid/Sludge SO = Soil HW = Hazardous Waste OTHER: \_\_\_\_\_

\*SAMPLE PRESERVATIVES: 1=Unpreserved 2=H2SO4 3=NaOH 4=HCl 5=HNO3 6=Na2S2O3 7=ZnOAc+NaOH 8=NH4Cl 9=H3PO4

Temp	On Ice	Custody Seal	DATE	TIME	Samples Relinquished By	Samples Received By
15°C	<input checked="" type="checkbox"/> N	Y <input checked="" type="checkbox"/>	9-4-20	15:05	<i>[Signature]</i>	<i>[Signature]</i>
°C	Y / N	Y / N				
°C	Y / N	Y / N				
°C	Y / N	Y / N				

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To the maximum extent permitted by law, the Client agrees to limit the liability of WETLAB for the Client's damages to the total compensation received, unless other agreements are made in writing. This limitation shall apply regardless of the cause of action or legal theory pled or asserted. \_\_\_\_\_ initial  
WETLAB will dispose of samples 90 days from sample receipt. Client may request a longer sample storage time for an additional fee. 301.2E  
Please contact your Project Manager for details. \_\_\_\_\_ initial



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WETLAB Order ID. 20090235

Sparks \_\_\_\_\_

Elko \_\_\_\_\_

LV \_\_\_\_\_

Report \_\_\_\_\_

Due Date \_\_\_\_\_

Page 3 of 3

Client Balanced Hydrologics

Address \_\_\_\_\_

City, State & Zip \_\_\_\_\_

Contact Ben

Phone \_\_\_\_\_ Collector's Name \_\_\_\_\_

Fax \_\_\_\_\_ Project \_\_\_\_\_

P.O. Number \_\_\_\_\_ PWS Number \_\_\_\_\_

**Turnaround Time Requirements**

Standard \_\_\_\_\_

5 Day\* (25%) \_\_\_\_\_ 72 Hour\* (50%) \_\_\_\_\_

48 Hour\* (100%) \_\_\_\_\_ 24 Hour\* (200%) \_\_\_\_\_

\*Surcharges Will Apply

Samples Collected From Which State? NV  CA \_\_\_\_\_ Other \_\_\_\_\_

Report Results Via  PDF  EDD

Compliance Monitoring? Yes  No  Other \_\_\_\_\_

Report to Regulatory Agency? Yes  No  Standard QC Required? Yes  No

Email \_\_\_\_\_

**Billing Address (if different than Client Address)**

Company \_\_\_\_\_

Address \_\_\_\_\_

City, State & Zip \_\_\_\_\_

Contact \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_

S A M P L E T Y P E **	NO. OF C O N T A I N E R S	Analyses Requested										Spl. No.		
		Total N	Total P	Ortho P	TSS	TDS								
Ag	2	X	X	X	X	X								
	2													
	2													
	2													

SAMPLE ID/LOCATION	DATE	TIME	PRES TYPE *	S	NO. OF CONTAINERS	Total N	Total P	Ortho P	TSS	TDS						Spl. No.
SBC @ CWW(1)	9/3/20	12:00		Ag	2	X	X	X	X	X						
SBC @ CWW(2)	9/3/20	18:00			2											
SBC @ CWW(3)	9/4/20	0:00			2											
SBC @ CWW(4)	9/4/20	6:00			2											

2009 2  
0235 21

Instructions/Comments/Special Requirements: \_\_\_\_\_

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\*SAMPLE PRESERVATIVES: 1=Unpreserved 2=H2SO4 3=NaOH 4=HCl 5=HNO3 6=Na2S2O3 7=ZnOAc+NaOH 8=NH4Cl 9=H3PO4

Temp	On Ice	Custody Seal	DATE	TIME	Samples Relinquished By	Samples Received By
15°C	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	Y <input checked="" type="checkbox"/> N	9-4-20	15:05		
°C	Y / N	Y / N				
°C	Y / N	Y / N				
°C	Y / N	Y / N				

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Please contact your Project Manager for details. \_\_\_\_\_ initial

12/8/2020

Balance Hydrologics  
800 Baucroft Ave. Suite 101  
Berkeley, CA 94710  
Attn: Ben Trustman

OrderID: 20110563

Dear: Ben Trustman

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

The samples were received by WETLAB-Western Environmental Testing Laboratory in good condition on 11/18/2020. Additional comments are located on page 2 of this report.

If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,



Cory Baker  
QA Specialist



Kat Langford  
Project Manager

KatL@wetlaboratory.com  
(775) 200-9876

**SPARKS**

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
fax (775) 355-0817  
EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamaille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Report Comments

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Balance Hydrologics - 20110563

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### Specific Report Comments

The result for Orthophosphate on sample 20110563-001 is higher than expected, especially when compared to the Total Phosphorus result. Due to concentrations in the sample it can be inferred that all of the Total Phosphorus is Orthophosphate based. In addition, Total Phosphorus was reanalyzed with confirming result.

The results for Orthophosphate on samples 20110563-002 and 003 is higher than expected, especially when compared to the Total Phosphorus results. It is thought that particulate matter contained in the sample (based on elevated Total Suspended Solids result) interfered with the Orthophosphate result by deflecting the light used in the spectrophotometric method. The particulate matter did not interfere with the Total Phosphorus analysis since that procedure includes an acid digestion process. The samples were reanalyzed for Total Phosphorus with confirming results.

### Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
- D -- Due to the sample matrix dilution was required in order to properly detect and report the analyte. The reporting limit has been adjusted accordingly.
- HT -- Sample analyzed beyond the accepted holding time
- J -- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit. The reported result should be considered an estimate.
- K -- The TPH Diesel Concentration reported here likely includes some heavier TPH Oil hydrocarbons reported in the TPH Diesel range as per EPA 8015.
- L -- The TPH Oil Concentration reported here likely includes some lighter TPH Diesel hydrocarbons reported in the TPH Oil range as per EPA 8015.
- M -- The matrix spike/matrix spike duplicate (MS/MSD) values for the analysis of this parameter were outside acceptance criteria due to probable matrix interference. The reported result should be considered an estimate.
- N -- There was insufficient sample available to perform a spike and/or duplicate on this analytical batch.
- NC -- Not calculated due to matrix interference
- QD -- The sample duplicate or matrix spike duplicate analysis demonstrated sample imprecision. The reported result should be considered an estimate.
- QL -- The result for the laboratory control sample (LCS) was outside WETLAB acceptance criteria and reanalysis was not possible. The reported data should be considered an estimate.
- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
- SC -- Spike recovery not calculated. Sample concentration >4X the spike amount; therefore, the spike could not be adequately recovered
- U -- The analyte was analyzed for, but was not detected above the level of the reported sample reporting/quantitation limit. The reported result should be considered an estimate.

---

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**General Lab Comments**

Per method recommendation (section 4.4), Samples analyzed by methods EPA 300.0 and EPA 300.1 have been filtered prior to analysis.

The following is an interpretation of the results from EPA method 9223B:

A result of zero (0) indicates absence for both coliform and Escherichia coli meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

Per federal regulation the holding time for the following parameters in aqueous/water samples is 15 minutes: Residual Chlorine, pH, Dissolved Oxygen, Sulfite.

---

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EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Analytical Report

**Balance Hydrologics**  
**800 Baucroft Ave. Suite 101**  
**Berkeley, CA 94710**

**Attn:** Ben Trustman  
**Phone:** (510-704-1000) **Fax:** NoFax  
**PO\Project:** 213136

**Date Printed:** 12/8/2020  
**OrderID:** 20110563

**Customer Sample ID:** SBC@RHR  
**WETLAB Sample ID:** 20110563-001

**Collect Date/Time:** 11/18/2020 06:30  
**Receive Date:** 11/18/2020 09:33

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b><u>General Chemistry</u></b>							
Orthophosphate, as P	SM 4500-P E	0.26	mg/L	1	0.020	11/18/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.25	mg/L	1	0.020	11/20/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	58	mg/L	1	10	11/18/2020	NV00925
Total Nitrogen	Calc.	2.1	mg/L	1	0.22	11/25/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	220	mg/L	1	25	11/18/2020	NV00925
<b><u>Microbiological Analyses</u></b>							
Total Coliform (MPN)	SM 9223B (Quantitray)	>4839.2	MPN/100ml	2	2.0	11/18/2020	NV00925
Escherichia Coli (MPN)	SM 9223B (Quantitray)	3106.2	MPN/100ml	2	2.0000	11/18/2020	NV00925
<b><u>Flow Injection Analyses</u></b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.31	mg/L	1	0.020	11/25/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	1.8	M mg/L	0.5	0.20	11/25/2020	NV00925

**Customer Sample ID:** SBC@NAR  
**WETLAB Sample ID:** 20110563-002

**Collect Date/Time:** 11/18/2020 07:10  
**Receive Date:** 11/18/2020 09:33

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b><u>General Chemistry</u></b>							
Orthophosphate, as P	SM 4500-P E	0.41	mg/L	1	0.020	11/18/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.25	mg/L	1	0.020	11/20/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	220	mg/L	1	10	11/18/2020	NV00925
Total Nitrogen	Calc.	2.6	mg/L	1	0.22	11/25/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	750	mg/L	1	25	11/18/2020	NV00925
<b><u>Flow Injection Analyses</u></b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.25	mg/L	1	0.020	11/25/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	2.3	mg/L	0.5	0.20	11/25/2020	NV00925

**Customer Sample ID:** WC@OVH  
**WETLAB Sample ID:** 20110563-003

**Collect Date/Time:** 11/18/2020 06:50  
**Receive Date:** 11/18/2020 09:33

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b><u>General Chemistry</u></b>							
Orthophosphate, as P	SM 4500-P E	0.26	mg/L	1	0.020	11/18/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.14	mg/L	1	0.020	11/23/2020	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 4 of 6

### SPARKS

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
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### ELKO

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 tel (775) 777-9933  
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 EPA LAB ID: NV00926

### LAS VEGAS

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: WC@OVH

Collect Date/Time: 11/18/2020 06:50

WETLAB Sample ID: 20110563-003

Receive Date: 11/18/2020 09:33

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
Total Suspended Solids (TSS)	SM 2540D	190	mg/L	1	10	11/18/2020	NV00925
Total Nitrogen	Calc.	3.0	mg/L	1	0.22	11/25/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	100	mg/L	1	25	11/18/2020	NV00925
<b>Microbiological Analyses</b>							
Total Coliform (MPN)	SM 9223B (Quantitray)	>9678.4	MPN/100ml	4	4.0	11/18/2020	NV00925
Escherichia Coli (MPN)	SM 9223B (Quantitray)	>9678.4	MPN/100ml	4	4.0	11/18/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.34	mg/L	1	0.020	11/25/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	2.6	mg/L	0.5	0.20	11/25/2020	NV00925

Customer Sample ID: NTD@ORD

Collect Date/Time: 11/18/2020 09:00

WETLAB Sample ID: 20110563-004

Receive Date: 11/18/2020 09:33

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.20	mg/L	1	0.020	11/18/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.29	mg/L	1	0.020	11/23/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	ND	mg/L	1	10	11/18/2020	NV00925
Total Nitrogen	Calc.	3.8	mg/L	1	0.22	11/25/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	1100	mg/L	1	25	11/18/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	1.9	mg/L	1	0.020	11/25/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	1.9	mg/L	0.5	0.20	11/25/2020	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected &lt;RL or &lt;MDL (if listed)

Page 5 of 6

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 Sparks, Nevada 89431  
 tel (775) 355-0202  
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1084 Lamaille Hwy  
 Elko, Nevada 89801  
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 Las Vegas, Nevada 89102  
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 EPA LAB ID: NV00932



# Western Environmental Testing Laboratory

## QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC20110720	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC20110760	Blank 1	Orthophosphate, as P	SM 4500-P E	ND			mg/L
QC20110772	Blank 1	Total Suspended Solids (TSS)	SM 2540D	ND			mg/L
QC20110852	Blank 1	Total Coliform (MPN)	SM 9223B (Quant	ND			MPN/100ml
		Escherichia Coli (MPN)	SM 9223B (Quant	ND			MPN/100ml
QC20110903	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC20110948	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC20111065	Blank 1	Nitrate + Nitrite Nitrogen	EPA 353.2	ND			mg/L
QC20111076	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC20110720	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	146	150	97	mg/L
QC20110720	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	151	150	101	mg/L
QC20110760	LCS 1	Orthophosphate, as P	SM 4500-P E	0.252	0.250	101	mg/L
QC20110772	LCS 1	Total Suspended Solids (TSS)	SM 2540D	197	200	98	mg/L
QC20110772	LCS 2	Total Suspended Solids (TSS)	SM 2540D	199	200	99	mg/L
QC20110903	LCS 1	Total Phosphorous as P	SM 4500-P E	0.244	0.250	97	mg/L
QC20110948	LCS 1	Total Phosphorous as P	SM 4500-P E	0.278	0.250	111	mg/L
QC20111065	LCS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	1.01	1.00	101	mg/L
QC20111076	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	0.974	1.00	97	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC20110720	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	20110528-003	846	860	mg/L	2 %
QC20110720	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	20110560-004	950	820	mg/L	QD 15 %
QC20110772	Duplicate 1	Total Suspended Solids (TSS)	SM 2540D	20110468-002	ND	ND	mg/L	NA
QC20110772	Duplicate 2	Total Suspended Solids (TSS)	SM 2540D	20110478-002	ND	ND	mg/L	<1%

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC20110760	MS 1	Orthophosphate, as P	SM 4500-P E	20110563-001	0.260	0.493	0.501	0.25	mg/L	93	96	2
QC20110903	MS 1	Total Phosphorous as P	SM 4500-P E	20110469-002	0.068	0.299	0.335	0.25	mg/L	92	107	11
QC20110903	MS 2	Total Phosphorous as P	SM 4500-P E	20110537-001	0.058	0.305	0.341	0.25	mg/L	99	113	11
QC20110948	MS 1	Total Phosphorous as P	SM 4500-P E	20110563-004	0.292	0.528	0.584	0.25	mg/L	94	117	10
QC20110948	MS 2	Total Phosphorous as P	SM 4500-P E	20110611-003	0.171	QD 0.380	0.293	0.25	mg/L	84	49	26
QC20111065	MS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	20110549-004	2.74	7.71	7.72	1	mg/L	99	100	<1
QC20111065	MS 2	Nitrate + Nitrite Nitrogen	EPA 353.2	20110563-003	0.344	1.30	1.31	1	mg/L	96	97	<1
QC20111076	MS 1	Total Kjeldahl Nitrogen	EPA 351.2	20110502-001	ND	M 0.752	0.734	0.5	mg/L	NC	NC	NC
QC20111076	MS 2	Total Kjeldahl Nitrogen	EPA 351.2	20110563-001	1.83	M 2.40	2.41	0.5	mg/L	NC	NC	NC

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 6 of 6

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475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
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# WETLAB

WESTERN ENVIRONMENTAL TESTING LABORATORY

Specializing in Soil, Hazardous Waste and Water Analysis.

475 E. Greg Street #119 | Sparks, Nevada 89431 | www.WETLaboratory.com

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tel (775) 777-9933 | fax (775) 777-9933

3230 Polaris Ave., Suite 4 | Las Vegas, Nevada 89102

tel (702) 475-8899 | fax (702) 776-6152

WETLAB Order ID **20110563**

Sparks \_\_\_\_\_

Elko \_\_\_\_\_

LV \_\_\_\_\_

Report Due Date \_\_\_\_\_

Page 1 of 1

Client **Balance Hydrologics**

Address **ON FILE**

City, State & Zip \_\_\_\_\_

Contact \_\_\_\_\_

Phone \_\_\_\_\_ Collector's Name \_\_\_\_\_

Fax \_\_\_\_\_ Project **213136**

P.O. Number \_\_\_\_\_ PWS Number \_\_\_\_\_

**Turnaround Time Requirements**

Standard  \_\_\_\_\_

5 Day\* (25%) \_\_\_\_\_ 72 Hour\* (50%) \_\_\_\_\_

48 Hour\* (100%) \_\_\_\_\_ 24 Hour\* (200%) \_\_\_\_\_

\*Surcharges Will Apply

Samples Collected From Which State?   
 NV  CA \_\_\_\_\_   
 Other \_\_\_\_\_

Report Results Via   
 PDF  EDD \_\_\_\_\_   
 Other **Excel**

Compliance Monitoring?   
 Yes \_\_\_\_\_ No  \_\_\_\_\_

Report to Regulatory Agency?   
 Yes \_\_\_\_\_ No  \_\_\_\_\_

Standard QC Required?   
 Yes  No \_\_\_\_\_

Email **htrustman@balancehydro.com**

Billing Address (if different than Client Address) \_\_\_\_\_

Company **ON FILE**

Address \_\_\_\_\_

City, State & Zip \_\_\_\_\_

Contact \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_

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**Analyses Requested**

Spl. No.	Total N	Total P	Ortho P	TDS	TSS	Ecoli
3	X	X	X	X	X	X
2	X	X	X	X	X	
3	X	X	X	X	X	X
2	X	X	X	X	X	X

SAMPLE ID/LOCATION	DATE	TIME	PRES TYPE *
<b>SBC@RHR</b>	<b>11/18/20</b>	<b>6:30</b>	<b>Ag</b>
<b>SBC@NAR</b>	<b>1</b>	<b>7:10</b>	<b>1</b>
<b>WC@OVH</b>	<b>1</b>	<b>6:50</b>	<b>1</b>
<b>NTD@ORD</b>	<b>1</b>	<b>9:00</b>	<b>1</b>

2011 .2  
0563 4

Instructions/Comments/Special Requirements:

Sample Matrix Key\*\* DW = Drinking Water WW = Wastewater SW = Surface Water MW = Monitoring Well SD = Solid/Sludge SO = Soil HW = Hazardous Waste OTHER: \_\_\_\_\_

\*SAMPLE PRESERVATIVES: 1=Unpreserved 2=H2SO4 3=NaOH 4=HCl 5=HNO3 6=Na2S2O3 7=ZnOAc+NaOH 8=NH4Cl 9=H3PO4

Temp	On Ice	Custody Seal	DATE	TIME	Samples Relinquished By	Samples Received By
<b>5.3 °C</b>	<b>Y / N</b>	<b>Y / (N)</b>	<b>11-18-20</b>	<b>0933</b>	<b>[Signature]</b>	<b>[Signature]</b>
°C	Y / N	Y / N				
°C	Y / N	Y / N				
°C	Y / N	Y / N				

WETLAB'S Standard Terms and Conditions apply unless written agreements specify otherwise. Payment terms are Net 30.

Client/Collector attests to the validity and authenticity of this (these) sample(s) and, is (are) aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636). \_\_\_\_\_ initial

To the maximum extent permitted by law, the Client agrees to limit the liability of WETLAB for the Client's damages to the total compensation received, unless other agreements are made in writing. This limitation shall apply regardless of the cause of action or legal theory pled or asserted. \_\_\_\_\_ initial

WETLAB will dispose of samples 90 days from sample receipt. Client may request a longer sample storage time for an additional fee. 301.2E

Please contact your Project Manager for details. \_\_\_\_\_ initial

12/8/2020

Balance Hydrologics  
800 Baucroft Ave. Suite 101  
Berkeley, CA 94710  
Attn: Ben Trustman

OrderID: 20110586

Dear: Ben Trustman

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

The samples were received by WETLAB-Western Environmental Testing Laboratory in good condition on 11/18/2020. Additional comments are located on page 2 of this report.

If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,



Cory Baker  
QA Specialist



Kat Langford  
Project Manager

KatL@wetlaboratory.com  
(775) 200-9876

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EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Report Comments

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Balance Hydrologics - 20110586

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### Specific Report Comments

Due to the sample matrix it was necessary to analyze the following at a dilution:

20110586-007 Nitrate Nitrogen

20110586-007 Nitrite Nitrogen

The reporting limits have been adjusted accordingly.

The result for Orthophosphate on samples 20110586-001, 010, 011 and 012 is higher than expected, especially when compared to the Total Phosphorus result. It is thought that particulate matter contained in the sample (based on elevated Total Suspended Solids result) interfered with the Orthophosphate result by deflecting the light used in the spectrophotometric method. The particulate matter did not interfere with the Total Phosphorus analysis since that procedure includes an acid digestion process. The samples were reanalyzed for Total Phosphorus with confirming results.

The result for Orthophosphate on sample 20110586-007 is higher than expected, especially when compared to the Total Phosphorus result. The Total Phosphorus was reanalyzed with confirming results. The Orthophosphate was not reanalyzed due the EPA recommended holding time being expired. The chemical irregularity may be due to a sample matrix interference. We apologize for any inconvenience this may have caused.

### Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
- D -- Due to the sample matrix dilution was required in order to properly detect and report the analyte. The reporting limit has been adjusted accordingly.
- HT -- Sample analyzed beyond the accepted holding time
- J -- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit. The reported result should be considered an estimate.
- K -- The TPH Diesel Concentration reported here likely includes some heavier TPH Oil hydrocarbons reported in the TPH Diesel range as per EPA 8015.
- L -- The TPH Oil Concentration reported here likely includes some lighter TPH Diesel hydrocarbons reported in the TPH Oil range as per EPA 8015.
- M -- The matrix spike/matrix spike duplicate (MS/MSD) values for the analysis of this parameter were outside acceptance criteria due to probable matrix interference. The reported result should be considered an estimate.
- N -- There was insufficient sample available to perform a spike and/or duplicate on this analytical batch.
- NC -- Not calculated due to matrix interference
- QD -- The sample duplicate or matrix spike duplicate analysis demonstrated sample imprecision. The reported result should be considered an estimate.
- QL -- The result for the laboratory control sample (LCS) was outside WETLAB acceptance criteria and reanalysis was not possible. The reported data should be considered an estimate.
- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
- SC -- Spike recovery not calculated. Sample concentration >4X the spike amount; therefore, the spike could not be adequately recovered
- U -- The analyte was analyzed for, but was not detected above the level of the reported sample reporting/quantitation limit. The reported result should be considered an estimate.

---

#### **SPARKS**

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
fax (775) 355-0817  
EPA LAB ID: NV00925 - ELAP No: 2523

#### **ELKO**

1084 Lamaille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
EPA LAB ID: NV00926

#### **LAS VEGAS**

3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932

**General Lab Comments**

Per method recommendation (section 4.4), Samples analyzed by methods EPA 300.0 and EPA 300.1 have been filtered prior to analysis.

The following is an interpretation of the results from EPA method 9223B:

A result of zero (0) indicates absence for both coliform and Escherichia coli meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

Per federal regulation the holding time for the following parameters in aqueous/water samples is 15 minutes: Residual Chlorine, pH, Dissolved Oxygen, Sulfite.

---

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Sparks, Nevada 89431  
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Las Vegas, Nevada 89102  
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fax (702) 622-2868  
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# Western Environmental Testing Laboratory

## Analytical Report

**Balance Hydrologics**  
**800 Baucroft Ave. Suite 101**  
**Berkeley, CA 94710**

**Attn:** Ben Trustman

**Phone:** (510-704-1000) **Fax:** NoFax

**PO\Project:** 213136

**Date Printed:** 12/8/2020

**OrderID:** 20110586

**Customer Sample ID:** H-19 (1)

**Collect Date/Time:** 11/18/2020 02:44

**WETLAB Sample ID:** 20110586-001

**Receive Date:** 11/18/2020 13:56

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b><u>General Chemistry</u></b>							
Orthophosphate, as P	SM 4500-P E	1.6	mg/L	5	0.10	11/19/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.68	mg/L	5	0.10	12/7/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	200	mg/L	1	10	11/19/2020	NV00925
Total Nitrogen	Calc.	11	mg/L	1	0.42	11/25/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	410	mg/L	1	25	11/18/2020	NV00925
<b><u>Flow Injection Analyses</u></b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.94	mg/L	1	0.020	11/25/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	9.7	mg/L	1	0.40	11/25/2020	NV00925

**Customer Sample ID:** H-19 (2)

**Collect Date/Time:** 11/18/2020 10:51

**WETLAB Sample ID:** 20110586-002

**Receive Date:** 11/18/2020 13:56

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b><u>General Chemistry</u></b>							
Orthophosphate, as P	SM 4500-P E	1.4	mg/L	5	0.10	11/19/2020	NV00925
Total Phosphorous as P	SM 4500-P E	1.8	mg/L	5	0.10	12/7/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	150	mg/L	1	10	11/19/2020	NV00925
Total Nitrogen	Calc.	6.1	mg/L	1	0.42	11/25/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	260	mg/L	1	25	11/18/2020	NV00925
<b><u>Flow Injection Analyses</u></b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.79	mg/L	1	0.020	11/25/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	5.3	mg/L	1	0.40	11/25/2020	NV00925

**Customer Sample ID:** H-19 (3)

**Collect Date/Time:** 11/18/2020 11:08

**WETLAB Sample ID:** 20110586-003

**Receive Date:** 11/18/2020 13:56

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b><u>General Chemistry</u></b>							
Orthophosphate, as P	SM 4500-P E	1.4	mg/L	5	0.10	11/19/2020	NV00925
Total Phosphorous as P	SM 4500-P E	2.0	mg/L	5	0.10	12/7/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	150	mg/L	1	10	11/19/2020	NV00925
Total Nitrogen	Calc.	7.0	mg/L	1	0.42	11/25/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	200	mg/L	1	25	11/18/2020	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

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### SPARKS

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

### ELKO

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

### LAS VEGAS

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: H-19 (3)

Collect Date/Time: 11/18/2020 11:08

WETLAB Sample ID: 20110586-003

Receive Date: 11/18/2020 13:56

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.91	mg/L	1	0.020	11/25/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	6.1	mg/L	1	0.40	11/25/2020	NV00925

Customer Sample ID: H-19 (4)

Collect Date/Time: 11/18/2020 11:17

WETLAB Sample ID: 20110586-004

Receive Date: 11/18/2020 13:56

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	1.4	mg/L	5	0.10	11/19/2020	NV00925
Total Phosphorous as P	SM 4500-P E	1.3	mg/L	5	0.10	11/23/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	96	mg/L	1	10	11/19/2020	NV00925
Total Nitrogen	Calc.	6.2	mg/L	1	0.42	11/25/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	220	mg/L	1	25	11/18/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.84	mg/L	1	0.020	11/25/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	5.4	mg/L	1	0.40	11/25/2020	NV00925

Customer Sample ID: H-19 (5)

Collect Date/Time: 11/18/2020 11:55

WETLAB Sample ID: 20110586-005

Receive Date: 11/18/2020 13:56

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>Microbiological Analyses</b>							
Total Coliform (MPN)	SM 9223B (Quantitray)	>9678.4	MPN/100ml	4	4.0	11/18/2020	NV00925
Escherichia Coli (MPN)	SM 9223B (Quantitray)	>9678.4	MPN/100ml	4	4.0	11/18/2020	NV00925

Customer Sample ID: AC@TR

Collect Date/Time: 11/18/2020 07:33

WETLAB Sample ID: 20110586-006

Receive Date: 11/18/2020 13:56

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.87	mg/L	5	0.10	11/19/2020	NV00925
Total Phosphorous as P	SM 4500-P E	1.0	mg/L	5	0.10	11/23/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	20	mg/L	1	10	11/19/2020	NV00925
Total Nitrogen	Calc.	3.4	mg/L	1	0.22	11/25/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	400	mg/L	1	25	11/18/2020	NV00925
<b>Microbiological Analyses</b>							
Total Coliform (MPN)	SM 9223B (Quantitray)	>9678.4	MPN/100ml	4	4.0	11/18/2020	NV00925
Escherichia Coli (MPN)	SM 9223B (Quantitray)	3080.4	MPN/100ml	4	4.0000	11/18/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.26	mg/L	1	0.020	11/25/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	3.1	mg/L	0.5	0.20	11/25/2020	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected &lt;RL or &lt;MDL (if listed)

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**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00926

Customer Sample ID: CC@CB

Collect Date/Time: 11/18/2020 09:05

WETLAB Sample ID: 20110586-007

Receive Date: 11/18/2020 13:56

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.70	mg/L	1	0.020	11/19/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.42	mg/L	1	0.020	12/7/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	46	mg/L	1	10	11/19/2020	NV00925
Total Nitrogen	Calc.	2.0	mg/L	1	0.45	11/25/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	1400	mg/L	1	25	11/18/2020	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	ND	D mg/L	5	0.15	11/19/2020	NV00925
Nitrite Nitrogen	EPA 300.0	ND	D mg/L	5	0.10	11/19/2020	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	1.9	mg/L	0.5	0.20	11/25/2020	NV00925

Customer Sample ID: TC@SMP

Collect Date/Time: 11/18/2020 10:30

WETLAB Sample ID: 20110586-008

Receive Date: 11/18/2020 13:56

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.31	mg/L	1	0.020	11/19/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.42	mg/L	1	0.020	11/23/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	15	mg/L	1	10	11/19/2020	NV00925
Total Nitrogen	Calc.	1.0	mg/L	1	0.22	11/25/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	100	mg/L	1	25	11/18/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.099	mg/L	1	0.020	11/25/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.91	M mg/L	0.5	0.20	11/25/2020	NV00925

Customer Sample ID: SDOE008936 (1)

Collect Date/Time: 11/18/2020 03:56

WETLAB Sample ID: 20110586-009

Receive Date: 11/18/2020 13:56

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.44	mg/L	1	0.020	11/19/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.51	mg/L	1	0.020	12/7/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	120	mg/L	1	10	11/19/2020	NV00925
Total Nitrogen	Calc.	11	mg/L	1	0.48	11/25/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	420	mg/L	1	25	11/18/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	3.9	mg/L	4	0.080	11/25/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	6.9	mg/L	1	0.40	11/25/2020	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected &lt;RL or &lt;MDL (if listed)

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**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00926



Customer Sample ID: SDOE008936 (2)

Collect Date/Time: 11/18/2020 11:14

WETLAB Sample ID: 20110586-010

Receive Date: 11/18/2020 13:56

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.47	mg/L	1	0.020	11/19/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.45	mg/L	1	0.020	11/23/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	340	mg/L	1	10	11/19/2020	NV00925
Total Nitrogen	Calc.	6.7	mg/L	1	0.42	11/25/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	230	mg/L	1	25	11/19/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.70	mg/L	1	0.020	11/25/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	6.0	mg/L	1	0.40	11/25/2020	NV00925

Customer Sample ID: SDOE008936 (3)

Collect Date/Time: 11/18/2020 12:11

WETLAB Sample ID: 20110586-011

Receive Date: 11/18/2020 13:56

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.55	mg/L	1	0.020	11/19/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.35	mg/L	1	0.020	11/23/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	330	mg/L	1	10	11/19/2020	NV00925
Total Nitrogen	Calc.	5.3	mg/L	1	0.22	11/25/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	180	mg/L	1	25	11/19/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.69	mg/L	1	0.020	11/25/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	4.6	mg/L	0.5	0.20	11/25/2020	NV00925

Customer Sample ID: SDOE008936 (4)

Collect Date/Time: 11/18/2020 12:44

WETLAB Sample ID: 20110586-012

Receive Date: 11/18/2020 13:56

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.48	mg/L	1	0.020	11/19/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.31	mg/L	1	0.020	11/23/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	240	mg/L	1	10	11/19/2020	NV00925
Total Nitrogen	Calc.	6.8	mg/L	1	0.42	11/25/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	160	mg/L	1	25	11/19/2020	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.82	mg/L	1	0.020	11/25/2020	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	6.0	mg/L	1	0.40	11/25/2020	NV00925

Customer Sample ID: SDOE008936 (5)

Collect Date/Time: 11/18/2020 13:00

WETLAB Sample ID: 20110586-013

Receive Date: 11/18/2020 13:56

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>Microbiological Analyses</b>							
Total Coliform (MPN)	SM 9223B (Quantitray)	>12098.	MPN/100ml	5	5.0	11/18/2020	NV00925
Escherichia Coli (MPN)	SM 9223B (Quantitray)	>12098.	MPN/100ml	5	5.0	11/18/2020	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected &lt;RL or &lt;MDL (if listed)

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475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
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**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00926

Customer Sample ID: SDOE008936 (5)

Collect Date/Time: 11/18/2020 13:00

WETLAB Sample ID: 20110586-013

Receive Date: 11/18/2020 13:56

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
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**SPARKS**

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
fax (775) 355-0817  
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**ELKO**

1084 Lamaille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC20110731	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC20110782	Blank 1	Orthophosphate, as P	SM 4500-P E	ND			mg/L
QC20110797	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC20110836	Blank 1	Nitrate Nitrogen	EPA 300.0	ND			mg/L
		Nitrite Nitrogen	EPA 300.0	ND			mg/L
QC20110852	Blank 1	Total Coliform (MPN)	SM 9223B (Quant	ND			MPN/100ml
		Escherichia Coli (MPN)	SM 9223B (Quant	ND			MPN/100ml
QC20110888	Blank 1	Total Suspended Solids (TSS)	SM 2540D	ND			mg/L
QC20110948	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC20111065	Blank 1	Nitrate + Nitrite Nitrogen	EPA 353.2	ND			mg/L
QC20111066	Blank 1	Nitrate + Nitrite Nitrogen	EPA 353.2	ND			mg/L
QC20111075	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L
QC20111076	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC20110731	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	137	150	91	mg/L
QC20110731	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	138	150	92	mg/L
QC20110782	LCS 1	Orthophosphate, as P	SM 4500-P E	0.259	0.250	103	mg/L
QC20110797	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	155	150	103	mg/L
QC20110797	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	149	150	99	mg/L
QC20110836	LCS 1	Nitrate Nitrogen	EPA 300.0	0.485	0.500	97	mg/L
		Nitrite Nitrogen	EPA 300.0	0.461	0.500	92	mg/L
QC20110888	LCS 1	Total Suspended Solids (TSS)	SM 2540D	197	200	99	mg/L
QC20110888	LCS 2	Total Suspended Solids (TSS)	SM 2540D	198	200	99	mg/L
QC20110948	LCS 1	Total Phosphorous as P	SM 4500-P E	0.278	0.250	111	mg/L
QC20111065	LCS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	1.01	1.00	101	mg/L
QC20111066	LCS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	1.01	1.00	101	mg/L
QC20111075	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	1.00	1.00	100	mg/L
QC20111076	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	0.974	1.00	97	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC20110731	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	20110518-001	836	854	mg/L	2 %
QC20110731	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	20110518-002	834	754	mg/L	10 %
QC20110797	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	20110520-002	976	1068	mg/L	9 %
QC20110797	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	20110520-003	784	798	mg/L	2 %
QC20110888	Duplicate 1	Total Suspended Solids (TSS)	SM 2540D	20110518-002	ND	ND	mg/L	<1%
QC20110888	Duplicate 2	Total Suspended Solids (TSS)	SM 2540D	20110520-002	ND	ND	mg/L	<1%

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC20110782	MS 1	Orthophosphate, as P	SM 4500-P E	20110587-002	3.62	4.83	4.78	0.25	mg/L	97	93	1
QC20110782	MS 2	Orthophosphate, as P	SM 4500-P E	20110587-001	5.71	8.12	8.20	0.25	mg/L	96	100	1
QC20110836	MS 1	Nitrate Nitrogen	EPA 300.0	20110586-007	ND	D 2.54	2.48	0.5	mg/L	100	97	2
		Nitrite Nitrogen	EPA 300.0	20110586-007	ND	D 0.585	0.578	0.125	mg/L	94	92	1
QC20110836	MS 2	Nitrate Nitrogen	EPA 300.0	20110668-002	0.109	0.622	0.634	0.5	mg/L	103	105	2
		Nitrite Nitrogen	EPA 300.0	20110668-002	ND	0.126	0.127	0.125	mg/L	93	94	<1

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 9 of 10

### SPARKS

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
fax (775) 355-0817  
EPA LAB ID: NV00925 - ELAP No: 2523

### ELKO

1084 Lamoille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
EPA LAB ID: NV00926

### LAS VEGAS

3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC20110948	MS 1	Total Phosphorous as P	SM 4500-PE	20110563-004	0.292	0.528	0.584	0.25	mg/L	94	117	10
QC20110948	MS 2	Total Phosphorous as P	SM 4500-PE	20110611-003	0.171	QD 0.380	0.293	0.25	mg/L	84	49	26
QC20111065	MS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	20110549-004	2.74	7.71	7.72	1	mg/L	99	100	<1
QC20111065	MS 2	Nitrate + Nitrite Nitrogen	EPA 353.2	20110563-003	0.344	1.30	1.31	1	mg/L	96	97	<1
QC20111066	MS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	20110586-010	0.698	1.69	1.69	1	mg/L	99	99	<1
QC20111066	MS 2	Nitrate + Nitrite Nitrogen	EPA 353.2	20110597-001	ND	5.11	5.14	1	mg/L	102	103	<1
QC20111075	MS 1	Total Kjeldahl Nitrogen	EPA 351.2	20110586-008	0.912	M 1.48	1.54	0.5	mg/L	NC	NC	NC
QC20111075	MS 2	Total Kjeldahl Nitrogen	EPA 351.2	20110611-006	1.12	1.62	1.63	0.5	mg/L	99	102	<1
QC20111076	MS 1	Total Kjeldahl Nitrogen	EPA 351.2	20110502-001	ND	M 0.752	0.734	0.5	mg/L	NC	NC	NC
QC20111076	MS 2	Total Kjeldahl Nitrogen	EPA 351.2	20110563-001	1.83	M 2.40	2.41	0.5	mg/L	NC	NC	NC

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# WETLAB

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Specializing in Soil, Hazardous Waste and Water Analysis.

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tel (702) 475-8899 | fax (702) 776-6152

WETLAB Order ID. 20110586

Sparks \_\_\_\_\_

Elko \_\_\_\_\_

LV \_\_\_\_\_

Report \_\_\_\_\_

Due Date \_\_\_\_\_

Page 1 of 2

Client Balance Hydrologics

Address ON File

City, State & Zip \_\_\_\_\_

Contact \_\_\_\_\_

Phone \_\_\_\_\_ Collector's Name \_\_\_\_\_

Fax \_\_\_\_\_ Project 213136

P.O. Number \_\_\_\_\_ PWS Number \_\_\_\_\_

Email btrastman@balancehydro.com

### Billing Address (if different than Client Address)

Company on File  
Address \_\_\_\_\_  
City, State & Zip \_\_\_\_\_  
Contact \_\_\_\_\_  
Phone \_\_\_\_\_ Fax \_\_\_\_\_  
Email \_\_\_\_\_

### Turnaround Time Requirements

Standard  \_\_\_\_\_  
5 Day\* (25%) \_\_\_\_\_ 72 Hour\* (50%) \_\_\_\_\_  
48 Hour\* (100%) \_\_\_\_\_ 24 Hour\* (200%) \_\_\_\_\_  
\*Surcharges Will Apply

### Samples Collected From Which State?

NV  CA \_\_\_\_\_  
Other \_\_\_\_\_

### Compliance Monitoring?

Yes  No

### Report to Regulatory Agency?

Yes  No

### Report Results Via

PDF  EDD \_\_\_\_\_  
Other Excel

### Standard QC Required?

Yes  No

### Analyses Requested

S A M P L E T Y P E **	NO. OF C O N T A I N E R S	Analyses Requested										Spl. No.			
		Total N	NO3	Total P	Ortho P	TDS	TSS	Ecoli							
Ag	2	X		X	X	X	X								1
	2	X		X	X	X	X								2
	2	X		X	X	X	X								3
	2	X		X	X	X	X								4
	1										X				5
	3	X		X	X	X	X	X	X		X				6
	2	X	X	X	X	X	X	X	X						7
	2	X		X	X	X	X	X	X						8
															9 NR

SAMPLE ID/LOCATION	DATE	TIME	PRES TYPE *
H-19(1)	11/18/20	2:44	Ag
H-19(2)		11:08	
H-19(3)		11:17	
H-19(4)		11:17	
H-19(5)		11:55	
AC@TR		7:33	
CC@CB		9:05	
TC@SMP		10:30	

Instructions/Comments/Special Requirements: Low-level, quant  
0586 13

Sample Matrix Key\*\* DW = Drinking Water WW = Wastewater SW = Surface Water MW = Monitoring Well SD = Solid/Sludge SO = Soil HW = Hazardous Waste OTHER: \_\_\_\_\_

\*SAMPLE PRESERVATIVES: 1=Unpreserved 2=H2SO4 3=NaOH 4=HCl 5=HNO3 6=Na2S2O3 7=ZnOAc+NaOH 8=NH4Cl 9=H3PO4

Temp	On Ice	Custody Seal	DATE	TIME	Samples Relinquished By	Samples Received By
8.8°C	<input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	Y / <input checked="" type="checkbox"/> N	11/18/20	1356		
°C	Y / N	Y / N				
°C	Y / N	Y / N				
°C	Y / N	Y / N				

WETLAB'S Standard Terms and Conditions apply unless written agreements specify otherwise. Payment terms are Net 30.

Client/Collector attests to the validity and authenticity of this (these) sample(s) and, is (are) aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636). \_\_\_\_\_ initial  
To the maximum extent permitted by law, the Client agrees to limit the liability of WETLAB for the Client's damages to the total compensation received, unless other agreements are made in writing. This limitation shall apply regardless of the cause of action or legal theory pled or asserted. \_\_\_\_\_ initial  
WETLAB will dispose of samples 90 days from sample receipt. Client may request a longer sample storage time for an additional fee. 301.2E  
Please contact your Project Manager for details. \_\_\_\_\_ initial



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WETLAB Order ID. 20110586

Sparks \_\_\_\_\_  
Elko \_\_\_\_\_  
LV \_\_\_\_\_  
Report Due Date \_\_\_\_\_  
Page 2 of 2

Client		Turnaround Time Requirements	
Address		Standard _____	
City, State & Zip		5 Day* (25%) _____ 72 Hour* (50%) _____	
Contact		48 Hour* (100%) _____ 24 Hour* (200%) _____	
Phone		*Surcharges Will Apply	
Collector's Name		Samples Collected From Which State?	
Project <u>213136</u>		Report Results Via	
PWS Number		NV _____ CA _____	
		Other _____	
		Compliance Monitoring?	
		Yes _____ No _____	
		Report to Regulatory Agency?	
		Yes _____ No _____	
		Standard QC Required?	
		Yes _____ No _____	

SAMPLE ID/LOCATION	DATE	TIME	PRES TYPE *	NO. OF CONTAINERS **	Analyses Requested						Spl. No.	
					Total N	Total P	Ortho P	TDS	TSS	Ecoli		
SDOE 008936 (1)	11/18/10	13:56		2	X	X	X	X	X		NH 10	9
SDOE 008936 (2)		11:14		2	X	X	X	X	X		NH 11	10
SDOE 008936 (3)		12:11		1	X	X	X	X	X		NH 12	11
SDOE 008936 (4)		12:44		2	X	X	X	X	X		NH 13	12
SDOE 008936 (5)		13:00		1					X		NH 14	13
											2011 6	
											0586	13

Instructions/Comments/Special Requirements:

Sample Matrix Key\*\* DW = Drinking Water WW = Wastewater SW = Surface Water MW = Monitoring Well SD = Solid/Sludge SO = Soil HW = Hazardous Waste OTHER: \_\_\_\_\_

\*SAMPLE PRESERVATIVES: 1=Unpreserved 2=H2SO4 3=NaOH 4=HCl 5=HNO3 6=Na2S2O3 7=ZnOAc+NaOH 8=NH4Cl 9=H3PO4

Temp	On Ice	Custody Seal	DATE	TIME	Samples Relinquished By	Samples Received By
8.8 °C	Y / N	Y / N	11/18/10	13:56	<i>[Signature]</i>	<i>[Signature]</i>
°C	Y / N	Y / N				
°C	Y / N	Y / N				
°C	Y / N	Y / N				

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Client/Collector attests to the validity and authenticity of this (these) sample(s) and, is (are) aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636). \_\_\_\_\_ initial  
To the maximum extent permitted by law, the Client agrees to limit the liability of WETLAB for the Client's damages to the total compensation received, unless other agreements are made in writing. This limitation shall apply regardless of the cause of action or legal theory pled or asserted. \_\_\_\_\_ initial  
WETLAB will dispose of samples 90 days from sample receipt. Client may request a longer sample storage time for an additional fee. 301.2E  
Please contact your Project Manager for details. \_\_\_\_\_ initial

12/30/2020

Balance Hydrologics  
800 Baucroft Ave. Suite 101  
Berkeley, CA 94710  
Attn: Ben Trustman

OrderID: 20120510

Dear: Ben Trustman

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

The samples were received by WETLAB-Western Environmental Testing Laboratory in good condition on 12/14/2020. Additional comments are located on page 2 of this report.

If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,



Jennifer Delaney  
QA Manager



Kat Langford  
Project Manager

KatL@wetlaboratory.com  
(775) 200-9876

**SPARKS**

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
fax (775) 355-0817  
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Elko, Nevada 89801  
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fax (775) 777-9933  
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**LAS VEGAS**

3230 Polaris Ave. Suite 4  
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fax (702) 622-2868  
EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Report Comments

Balance Hydrologics - 20120510

### Specific Report Comments

The result for Orthophosphate on samples 20120510-003, 006, 009, and 011 are higher than expected, especially when compared to the Total Phosphorus results. It is possible the particulate matter contained in the sample (based on elevated Total Suspended Solids result) interfered with the Orthophosphate result by deflecting the light used in the spectrophotometric method. The particulate matter did not interfere with the Total Phosphorus analysis since that procedure includes an acid digestion process.

### Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
- D -- Due to the sample matrix dilution was required in order to properly detect and report the analyte. The reporting limit has been adjusted accordingly.
- HT -- Sample analyzed beyond the accepted holding time
- J -- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit. The reported result should be considered an estimate.
- K -- The TPH Diesel Concentration reported here likely includes some heavier TPH Oil hydrocarbons reported in the TPH Diesel range as per EPA 8015.
- L -- The TPH Oil Concentration reported here likely includes some lighter TPH Diesel hydrocarbons reported in the TPH Oil range as per EPA 8015.
- M -- The matrix spike/matrix spike duplicate (MS/MSD) values for the analysis of this parameter were outside acceptance criteria due to probable matrix interference. The reported result should be considered an estimate.
- N -- There was insufficient sample available to perform a spike and/or duplicate on this analytical batch.
- NC -- Not calculated due to matrix interference
- QD -- The sample duplicate or matrix spike duplicate analysis demonstrated sample imprecision. The reported result should be considered an estimate.
- QL -- The result for the laboratory control sample (LCS) was outside WETLAB acceptance criteria and reanalysis was not possible. The reported data should be considered an estimate.
- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
- SC -- Spike recovery not calculated. Sample concentration >4X the spike amount; therefore, the spike could not be adequately recovered
- U -- The analyte was analyzed for, but was not detected above the level of the reported sample reporting/quantitation limit. The reported result should be considered an estimate.

### General Lab Comments

Per method recommendation (section 4.4), Samples analyzed by methods EPA 300.0 and EPA 300.1 have been filtered prior to analysis.

The following is an interpretation of the results from EPA method 9223B:

A result of zero (0) indicates absence for both coliform and Escherichia coli meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

Per federal regulation the holding time for the following parameters in aqueous/water samples is 15 minutes: Residual Chlorine, pH, Dissolved Oxygen, Sulfite.

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Elko, Nevada 89801  
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EPA LAB ID: NV00932



# Western Environmental Testing Laboratory

## Analytical Report

Balance Hydrologics  
 800 Baucroft Ave. Suite 101  
 Berkeley, CA 94710  
 Attn: Ben Trustman  
 Phone: (510-704-1000) Fax: NoFax  
 PO\Project: 213136

Date Printed: 12/30/2020  
 OrderID: 20120510

Customer Sample ID: C-24 (1)  
 WETLAB Sample ID: 20120510-001

Collect Date/Time: 12/13/2020 18:05  
 Receive Date: 12/14/2020 12:30

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.37	mg/L	1	0.020	12/15/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.60	mg/L	1	0.020	12/15/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	140	mg/L	1	10	12/16/2020	NV00925
Total Nitrogen	Calc.	3.5	mg/L	1	0.25	12/21/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	170	mg/L	1	25	12/15/2020	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.37	mg/L	1	0.030	12/14/2020	NV00925
Nitrite Nitrogen	EPA 300.0	0.070	mg/L	1	0.020	12/14/2020	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	3.1	M mg/L	0.5	0.20	12/21/2020	NV00925

Customer Sample ID: C-24 (2)  
 WETLAB Sample ID: 20120510-002

Collect Date/Time: 12/13/2020 18:49  
 Receive Date: 12/14/2020 12:30

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.30	mg/L	1	0.020	12/15/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.32	mg/L	1	0.020	12/15/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	120	mg/L	1	10	12/16/2020	NV00925
Total Nitrogen	Calc.	3.1	mg/L	1	0.25	12/21/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	110	mg/L	1	25	12/15/2020	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.28	mg/L	1	0.030	12/14/2020	NV00925
Nitrite Nitrogen	EPA 300.0	0.047	mg/L	1	0.020	12/14/2020	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	2.8	mg/L	0.5	0.20	12/21/2020	NV00925

### SPARKS

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 Elko, Nevada 89801  
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### LAS VEGAS

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 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: C-24 (3)

Collect Date/Time: 12/13/2020 19:10

WETLAB Sample ID: 20120510-003

Receive Date: 12/14/2020 12:30

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.22	mg/L	1	0.020	12/15/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.15	mg/L	1	0.020	12/15/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	140	mg/L	1	10	12/16/2020	NV00925
Total Nitrogen	Calc.	2.3	mg/L	1	0.25	12/21/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	87	mg/L	1	25	12/15/2020	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.21	mg/L	1	0.030	12/14/2020	NV00925
Nitrite Nitrogen	EPA 300.0	0.028	mg/L	1	0.020	12/14/2020	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	2.1	mg/L	0.5	0.20	12/21/2020	NV00925

Customer Sample ID: C-24 (4)

Collect Date/Time: 12/13/2020 19:20

WETLAB Sample ID: 20120510-004

Receive Date: 12/14/2020 12:30

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.20	mg/L	1	0.020	12/15/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.22	mg/L	1	0.020	12/17/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	42	mg/L	1	10	12/16/2020	NV00925
Total Nitrogen	Calc.	1.5	mg/L	1	0.25	12/21/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	96	mg/L	1	25	12/15/2020	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.18	mg/L	1	0.030	12/14/2020	NV00925
Nitrite Nitrogen	EPA 300.0	0.024	mg/L	1	0.020	12/14/2020	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	1.3	mg/L	0.5	0.20	12/21/2020	NV00925

Customer Sample ID: D-16 (1)

Collect Date/Time: 12/13/2020 18:46

WETLAB Sample ID: 20120510-005

Receive Date: 12/14/2020 12:30

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.16	mg/L	1	0.020	12/15/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.47	mg/L	1	0.020	12/17/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	200	mg/L	1	10	12/16/2020	NV00925
Total Nitrogen	Calc.	9.3	mg/L	1	0.50	12/21/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	450	mg/L	1	25	12/15/2020	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	1.0	mg/L	2	0.060	12/14/2020	NV00925
Nitrite Nitrogen	EPA 300.0	0.30	mg/L	2	0.040	12/14/2020	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	8.0	mg/L	1	0.40	12/21/2020	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected &lt;RL or &lt;MDL (if listed)

Page 4 of 8

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 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: D-16 (2)

Collect Date/Time: 12/13/2020 20:07

WETLAB Sample ID: 20120510-006

Receive Date: 12/14/2020 12:30

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.28	mg/L	1	0.020	12/15/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.25	mg/L	1	0.020	12/17/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	140	mg/L	1	10	12/16/2020	NV00925
Total Nitrogen	Calc.	4.0	mg/L	1	0.25	12/21/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	190	mg/L	1	25	12/15/2020	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.58	mg/L	1	0.030	12/14/2020	NV00925
Nitrite Nitrogen	EPA 300.0	0.11	mg/L	1	0.020	12/14/2020	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	3.3	mg/L	0.5	0.20	12/21/2020	NV00925

Customer Sample ID: D-16 (3)

Collect Date/Time: 12/13/2020 20:42

WETLAB Sample ID: 20120510-007

Receive Date: 12/14/2020 12:30

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.31	mg/L	1	0.020	12/15/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.44	mg/L	1	0.020	12/30/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	93	mg/L	1	10	12/16/2020	NV00925
Total Nitrogen	Calc.	3.7	mg/L	1	0.25	12/21/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	140	mg/L	1	25	12/15/2020	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.49	mg/L	1	0.030	12/14/2020	NV00925
Nitrite Nitrogen	EPA 300.0	0.076	mg/L	1	0.020	12/14/2020	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	3.1	mg/L	0.5	0.20	12/21/2020	NV00925

Customer Sample ID: D-16 (4)

Collect Date/Time: 12/13/2020 21:10

WETLAB Sample ID: 20120510-008

Receive Date: 12/14/2020 12:30

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.29	mg/L	1	0.020	12/15/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.32	mg/L	1	0.020	12/30/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	37	mg/L	1	10	12/16/2020	NV00925
Total Nitrogen	Calc.	2.8	mg/L	1	0.25	12/21/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	200	mg/L	1	25	12/15/2020	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.54	mg/L	1	0.030	12/14/2020	NV00925
Nitrite Nitrogen	EPA 300.0	0.072	mg/L	1	0.020	12/14/2020	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	2.2	mg/L	0.5	0.20	12/21/2020	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected &lt;RL or &lt;MDL (if listed)

Page 5 of 8

**SPARKS**

475 E. Greg Street, Suite 119  
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 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

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**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: SDOE 008936 (2)

Collect Date/Time: 12/13/2020 19:11

WETLAB Sample ID: 20120510-009

Receive Date: 12/14/2020 12:30

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.25	mg/L	1	0.020	12/15/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.24	mg/L	1	0.020	12/17/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	140	mg/L	1	10	12/16/2020	NV00925
Total Nitrogen	Calc.	4.7	mg/L	1	0.25	12/21/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	240	mg/L	1	25	12/15/2020	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.87	mg/L	1	0.030	12/14/2020	NV00925
Nitrite Nitrogen	EPA 300.0	0.091	mg/L	1	0.020	12/14/2020	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	3.8	M mg/L	0.5	0.20	12/21/2020	NV00925

Customer Sample ID: SDOE 008936 (3)

Collect Date/Time: 12/13/2020 20:23

WETLAB Sample ID: 20120510-010

Receive Date: 12/14/2020 12:30

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.29	mg/L	1	0.020	12/15/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.58	mg/L	1	0.020	12/17/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	290	mg/L	1	10	12/16/2020	NV00925
Total Nitrogen	Calc.	5.5	mg/L	1	0.25	12/21/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	180	mg/L	1	25	12/15/2020	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.92	mg/L	1	0.030	12/14/2020	NV00925
Nitrite Nitrogen	EPA 300.0	0.082	mg/L	1	0.020	12/14/2020	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	4.5	mg/L	0.5	0.20	12/21/2020	NV00925

Customer Sample ID: SDOE 008936 (4)

Collect Date/Time: 12/13/2020 21:11

WETLAB Sample ID: 20120510-011

Receive Date: 12/14/2020 12:30

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.35	mg/L	1	0.020	12/15/2020	NV00925
Total Phosphorous as P	SM 4500-P E	0.31	mg/L	1	0.020	12/17/2020	NV00925
Total Suspended Solids (TSS)	SM 2540D	100	mg/L	1	10	12/16/2020	NV00925
Total Nitrogen	Calc.	3.7	mg/L	1	0.25	12/21/2020	NV00925
Total Dissolved Solids (TDS)	SM 2540C	130	mg/L	1	25	12/15/2020	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.53	mg/L	1	0.030	12/14/2020	NV00925
Nitrite Nitrogen	EPA 300.0	0.075	mg/L	1	0.020	12/14/2020	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	3.1	mg/L	0.5	0.20	12/21/2020	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected &lt;RL or &lt;MDL (if listed)

Page 6 of 8

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 EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC20120573	Blank 1	Nitrate Nitrogen	EPA 300.0	ND			mg/L
		Nitrite Nitrogen	EPA 300.0	ND			mg/L
QC20120593	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC20120595	Blank 1	Orthophosphate, as P	SM 4500-P E	ND			mg/L
QC20120618	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC20120624	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC20120659	Blank 1	Total Suspended Solids (TSS)	SM 2540D	ND			mg/L
QC20120755	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC20120864	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L
QC20120865	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC20120573	LCS 1	Nitrate Nitrogen	EPA 300.0	0.496	0.500	99	mg/L
		Nitrite Nitrogen	EPA 300.0	0.485	0.500	97	mg/L
QC20120593	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	164	150	109	mg/L
QC20120593	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	151	150	101	mg/L
QC20120595	LCS 1	Orthophosphate, as P	SM 4500-P E	0.260	0.250	104	mg/L
QC20120618	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	151	150	101	mg/L
QC20120618	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	149	150	99	mg/L
QC20120624	LCS 1	Total Phosphorous as P	SM 4500-P E	0.277	0.250	111	mg/L
QC20120659	LCS 1	Total Suspended Solids (TSS)	SM 2540D	197	200	99	mg/L
QC20120659	LCS 2	Total Suspended Solids (TSS)	SM 2540D	200	200	100	mg/L
QC20120755	LCS 1	Total Phosphorous as P	SM 4500-P E	0.238	0.250	95	mg/L
QC20120864	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	0.969	1.00	97	mg/L
QC20120865	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	0.938	1.00	94	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC20120593	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	20120467-004	988	1002	mg/L	1 %
QC20120593	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	20120467-006	930	922	mg/L	1 %
QC20120618	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	20120477-001	1322	1374	mg/L	4 %
QC20120618	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	20120483-006	710	664	mg/L	7 %
QC20120659	Duplicate 1	Total Suspended Solids (TSS)	SM 2540D	20120548-001	25.0	24.0	mg/L	4 %
QC20120659	Duplicate 2	Total Suspended Solids (TSS)	SM 2540D	20120510-003	140	138	mg/L	1 %

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC20120573 MS 1		Nitrate Nitrogen	EPA 300.0	20120510-004	0.182	0.679	0.706	0.5	mg/L	99	105	4
		Nitrite Nitrogen	EPA 300.0	20120510-004	0.024	0.140	0.148	0.125	mg/L	92	99	6
QC20120573 MS 2		Nitrate Nitrogen	EPA 300.0	20120510-011	0.531	1.06	1.06	0.5	mg/L	106	107	<1
		Nitrite Nitrogen	EPA 300.0	20120510-011	0.075	0.200	0.199	0.125	mg/L	100	100	<1
QC20120595 MS 1		Orthophosphate, as P	SM 4500-P E	20120510-001	0.373	0.595	0.631	0.25	mg/L	89	103	6
QC20120595 MS 2		Orthophosphate, as P	SM 4500-P E	20120510-011	0.347	0.591	0.600	0.25	mg/L	98	102	2
QC20120624 MS 1		Total Phosphorous as P	SM 4500-P E	20120412-001	0.419	0.638	0.655	0.25	mg/L	87	94	3
QC20120624 MS 2		Total Phosphorous as P	SM 4500-P E	20120507-003	ND	HT 0.234	0.242	0.25	mg/L	84	87	3
QC20120755 MS 1		Total Phosphorous as P	SM 4500-P E	20120464-002	ND	0.250	0.266	0.25	mg/L	93	100	6
QC20120755 MS 2		Total Phosphorous as P	SM 4500-P E	20120479-002	0.042	0.292	0.262	0.25	mg/L	100	88	11

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 7 of 8

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fax (702) 622-2868  
EPA LAB ID: NV00932

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC20120864	MS 1	Total Kjeldahl Nitrogen	EPA 351.2	20120310-001	0.102	M,J 0.549	0.500	0.5	mg/L	NC	NC	NC
QC20120864	MS 2	Total Kjeldahl Nitrogen	EPA 351.2	20120510-001	3.10	M 3.52	3.91	0.5	mg/L	NC	NC	NC
QC20120865	MS 1	Total Kjeldahl Nitrogen	EPA 351.2	20120510-009	3.75	M 4.70	4.21	0.5	mg/L	NC	NC	NC

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# WETLAB

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tel (775) 777-9933 | fax (775) 777-9933

3230 Polaris Ave., Suite 4 | Las Vegas, Nevada 89102

tel (702) 475-8899 | fax (702) 776-6152

WETLAB Order ID. 20120510

Sparks \_\_\_\_\_

Elko \_\_\_\_\_

LV \_\_\_\_\_

Report \_\_\_\_\_

Due Date \_\_\_\_\_

Page 1 of 2

Client Balance Hydrologics

Address \_\_\_\_\_

City, State & Zip ON File

Contact Ben Trustman

Phone \_\_\_\_\_ Collector's Name \_\_\_\_\_

Fax \_\_\_\_\_ Project 213136

P.O. Number \_\_\_\_\_ PWS Number \_\_\_\_\_

**Turnaround Time Requirements**

Standard  \_\_\_\_\_

5 Day\* (25%) \_\_\_\_\_ 72 Hour\* (50%) \_\_\_\_\_

48 Hour\* (100%) \_\_\_\_\_ 24 Hour\* (200%) \_\_\_\_\_

\*Surcharges Will Apply

**Samples Collected From Which State?**

NV  CA \_\_\_\_\_

Other \_\_\_\_\_

**Report Results Via**

PDF  EDD

Other Excel

**Compliance Monitoring?**

Yes \_\_\_\_\_ No

**Report to Regulatory Agency?**

Yes \_\_\_\_\_ No

Standard QC Required?  Yes  No

Email btrustman@balancehydro.com

**Billing Address (if different than Client Address)**

Company Balance Hydrologics

Address ON File

City, State & Zip \_\_\_\_\_

Contact Rachel Boitano

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Email rboitano@balancehydro.com

S A M P L E T Y P E S	NO. OF C O N T A I N E R S	Analyses Requested							Spl. No.
		Total N	Total P	Ortho P	TPS	TSS	NO <sub>3</sub>		
	2	X	X	X	X	X	X		
	2	X	X	X	X	X	X		
	2	X	X	X	X	X	X		
	2	X	X	X	X	X	X		
	2	X	X	X	X	X	X		
	2	X	X	X	X	X	X		2012 2
	2	X	X	X	X	X	X		0510 11
	2	X	X	X	X	X	X		

SAMPLE ID/LOCATION	DATE	TIME	PRES TYPE *	SAMPLE TYPE **	Total N	Total P	Ortho P	TPS	TSS	NO <sub>3</sub>	Spl. No.
C-24(1)	12/13/10	18:05		2	X	X	X	X	X	X	
C-24(2)		18:49		2	X	X	X	X	X	X	
C-24(3)		19:10		2	X	X	X	X	X	X	
C-24(4)		19:20		2	X	X	X	X	X	X	
D-16(1)		18:46		2	X	X	X	X	X	X	
D-16(2)		20:07		2	X	X	X	X	X	X	2012 2
D-16(3)		20:42		2	X	X	X	X	X	X	0510 11
D-16(4)		21:10		2	X	X	X	X	X	X	

Instructions/Comments/Special Requirements:

Sample Matrix Key\*\* DW = Drinking Water WW = Wastewater SW = Surface Water MW = Monitoring Well SD = Solid/Sludge SO = Soil HW = Hazardous Waste OTHER: \_\_\_\_\_

\*SAMPLE PRESERVATIVES: 1=Unpreserved 2=H2SO4 3=NaOH 4=HCl 5=HNO3 6=Na2S2O3 7=ZnOAc+NaOH 8=NH4Cl 9=H3PO4

Temp	On Ice	Custody Seal	DATE	TIME	Samples Relinquished By	Samples Received By
21 °C	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Y / N	12/14/20	12:33		
°C	Y / N	Y / N				
°C	Y / N	Y / N				
°C	Y / N	Y / N				

WETLAB'S Standard Terms and Conditions apply unless written agreements specify otherwise. Payment terms are Net 30.

Client/Collector attests to the validity and authenticity of this (these) sample(s) and, is (are) aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636). \_\_\_\_\_ initial

To the maximum extent permitted by law, the Client agrees to limit the liability of WETLAB for the Client's damages to the total compensation received, unless other agreements are made in writing. This limitation shall apply regardless of the cause of action or legal theory pled or asserted. \_\_\_\_\_ initial

WETLAB will dispose of samples 90 days from sample receipt. Client may request a longer sample storage time for an additional fee. 301.2E

Please contact your Project Manager for details. \_\_\_\_\_ initial



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WETLAB Order ID. 20120510

Sparks \_\_\_\_\_

Elko \_\_\_\_\_

LV \_\_\_\_\_

Report \_\_\_\_\_

Due Date \_\_\_\_\_

Page 2 of 2

Client \_\_\_\_\_

Address \_\_\_\_\_

City, State & Zip \_\_\_\_\_

Contact \_\_\_\_\_

Phone \_\_\_\_\_ Collector's Name \_\_\_\_\_

Fax \_\_\_\_\_ Project \_\_\_\_\_

P.O. Number \_\_\_\_\_ PWS Number \_\_\_\_\_

Email \_\_\_\_\_

### Billing Address (if different than Client Address)

Company \_\_\_\_\_

Address \_\_\_\_\_

City, State & Zip \_\_\_\_\_

Contact \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_

SAMPLE NO. OF CONTAINERS

DATE TIME PRES TYPE

SAMPLE ID/LOCATION

SDOE 008936 (2) 12/13/20 19:11 Ag 2

SDOE 008936 (3) 20:23 2

SDOE 008936 (4) 21:11 2

### Turnaround Time Requirements

Standard \_\_\_\_\_

5 Day\* (25%) \_\_\_\_\_ 72 Hour\* (50%) \_\_\_\_\_

48 Hour\* (100%) \_\_\_\_\_ 24 Hour\* (200%) \_\_\_\_\_

\*Surcharges Will Apply

Samples Collected From Which State? Report Results Via

NV \_\_\_\_\_ CA \_\_\_\_\_

Other \_\_\_\_\_

Compliance Monitoring? PDF EDD

Yes No Other \_\_\_\_\_

Report to Regulatory Agency? Standard QC Required?

Yes No Yes No

### Analyses Requested

Instructions/Comments/Special Requirements:

Sample Matrix Key\*\* DW = Drinking Water WW = Wastewater SW = Surface Water MW = Monitoring Well SD = Solid/Sludge SO = Soil HW = Hazardous Waste OTHER: \_\_\_\_\_

\*SAMPLE PRESERVATIVES: 1=Unpreserved 2=H2SO4 3=NaOH 4=HCl 5=HNO3 6=Na2S2O3 7=ZnOAc+NaOH 8=NH4Cl 9=H3PO4

Temp	On Ice	Custody Seal	DATE	TIME	Samples Relinquished By	Samples Received By
7.1 °C	Y/N	Y/N	12/14/20	12:30	[Signature]	[Signature]
°C	Y/N	Y/N				
°C	Y/N	Y/N				
°C	Y/N	Y/N				

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Client/Collector attests to the validity and authenticity of this (these) sample(s) and, is (are) aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636). \_\_\_\_\_ initial  
To the maximum extent permitted by law, the Client agrees to limit the liability of WETLAB for the Client's damages to the total compensation received, unless other agreements are made in writing. This limitation shall apply regardless of the cause of action or legal theory pled or asserted. \_\_\_\_\_ initial  
WETLAB will dispose of samples 90 days from sample receipt. Client may request a longer sample storage time for an additional fee. 301.2E  
Please contact your Project Manager for details. \_\_\_\_\_ initial

2012-2  
0510 11



1/19/2021

Balance Hydrologics  
800 Baucroft Ave. Suite 101  
Berkeley, CA 94710  
Attn: Ben Trustman

OrderID: 21010076

Dear: Ben Trustman

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

The samples were received by WETLAB-Western Environmental Testing Laboratory in good condition on 1/5/2021. Additional comments are located on page 2 of this report.

If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,



Cory Baker  
QA Specialist



Kat Langford  
Project Manager

KatL@wetlaboratory.com  
(775) 200-9876

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EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Report Comments

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Balance Hydrologics - 21010076

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### Specific Report Comments

The result for Orthophosphate on sample 21010076-007 is higher than expected, especially when compared to the Total Phosphorus result. The Total Phosphorus was reanalyzed with confirming results. The Orthophosphate was not reanalyzed due the EPA recommended holding time being expired. The chemical irregularity may be due to a sample matrix interference. We apologize for any inconvenience this may have caused.

### Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
- D -- Due to the sample matrix dilution was required in order to properly detect and report the analyte. The reporting limit has been adjusted accordingly.
- HT -- Sample analyzed beyond the accepted holding time
- J -- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit. The reported result should be considered an estimate.
- K -- The TPH Diesel Concentration reported here likely includes some heavier TPH Oil hydrocarbons reported in the TPH Diesel range as per EPA 8015.
- L -- The TPH Oil Concentration reported here likely includes some lighter TPH Diesel hydrocarbons reported in the TPH Oil range as per EPA 8015.
- M -- The matrix spike/matrix spike duplicate (MS/MSD) values for the analysis of this parameter were outside acceptance criteria due to probable matrix interference. The reported result should be considered an estimate.
- N -- There was insufficient sample available to perform a spike and/or duplicate on this analytical batch.
- NC -- Not calculated due to matrix interference
- QD -- The sample duplicate or matrix spike duplicate analysis demonstrated sample imprecision. The reported result should be considered an estimate.
- QL -- The result for the laboratory control sample (LCS) was outside WETLAB acceptance criteria and reanalysis was not possible. The reported data should be considered an estimate.
- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
- SC -- Spike recovery not calculated. Sample concentration >4X the spike amount; therefore, the spike could not be adequately recovered
- U -- The analyte was analyzed for, but was not detected above the level of the reported sample reporting/quantitation limit. The reported result should be considered an estimate.

### General Lab Comments

Per method recommendation (section 4.4), Samples analyzed by methods EPA 300.0 and EPA 300.1 have been filtered prior to analysis.

The following is an interpretation of the results from EPA method 9223B:

A result of zero (0) indicates absence for both coliform and Escherichia coli meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

Per federal regulation the holding time for the following parameters in aqueous/water samples is 15 minutes: Residual Chlorine, pH, Dissolved Oxygen, Sulfite.

---

#### **SPARKS**

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
fax (775) 355-0817  
EPA LAB ID: NV00925 - ELAP No: 2523

#### **ELKO**

1084 Lamaille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
EPA LAB ID: NV00926

#### **LAS VEGAS**

3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Analytical Report

**Balance Hydrologics**  
**800 Baucroft Ave. Suite 101**  
**Berkeley, CA 94710**

**Attn:** Ben Trustman  
**Phone:** (510-704-1000) **Fax:** NoFax  
**PO\Project:** 213136

**Date Printed:** 1/19/2021  
**OrderID:** 21010076

**Customer Sample ID:** D-16 (1)

**Collect Date/Time:** 1/4/2021 16:22

**WETLAB Sample ID:** 21010076-001

**Receive Date:** 1/5/2021 13:04

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b><u>General Chemistry</u></b>							
Orthophosphate, as P	SM 4500-P E	0.26	mg/L	1	0.020	1/6/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.56	mg/L	1	0.020	1/8/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	820	mg/L	1	10	1/6/2021	NV00925
Total Nitrogen	Calc.	9.5	mg/L	1	0.50	1/12/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	830	mg/L	1	25	1/5/2021	NV00925
<b><u>Anions by Ion Chromatography</u></b>							
Nitrate Nitrogen	EPA 300.0	1.1	mg/L	2	0.060	1/5/2021	NV00925
Nitrite Nitrogen	EPA 300.0	0.25	mg/L	2	0.040	1/5/2021	NV00925
<b><u>Flow Injection Analyses</u></b>							
Total Kjeldahl Nitrogen	EPA 351.2	8.1	mg/L	1	0.40	1/12/2021	NV00925

**Customer Sample ID:** D-16 (3)

**Collect Date/Time:** 1/4/2021 16:47

**WETLAB Sample ID:** 21010076-002

**Receive Date:** 1/5/2021 13:04

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b><u>General Chemistry</u></b>							
Orthophosphate, as P	SM 4500-P E	0.26	mg/L	1	0.020	1/6/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.35	mg/L	1	0.020	1/8/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	370	mg/L	1	10	1/6/2021	NV00925
Total Nitrogen	Calc.	6.0	mg/L	1	0.45	1/12/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	440	mg/L	1	25	1/5/2021	NV00925
<b><u>Anions by Ion Chromatography</u></b>							
Nitrate Nitrogen	EPA 300.0	0.60	mg/L	1	0.030	1/5/2021	NV00925
Nitrite Nitrogen	EPA 300.0	0.096	mg/L	1	0.020	1/5/2021	NV00925
<b><u>Flow Injection Analyses</u></b>							
Total Kjeldahl Nitrogen	EPA 351.2	5.3	mg/L	1	0.40	1/12/2021	NV00925

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475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
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 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

### ELKO

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

### LAS VEGAS

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: D-16 (4)

Collect Date/Time: 1/4/2021 17:17

WETLAB Sample ID: 21010076-003

Receive Date: 1/5/2021 13:04

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.24	mg/L	1	0.020	1/6/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.48	mg/L	1	0.020	1/8/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	420	mg/L	1	10	1/6/2021	NV00925
Total Nitrogen	Calc.	4.9	mg/L	1	0.25	1/12/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	390	mg/L	1	25	1/5/2021	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.60	mg/L	1	0.030	1/5/2021	NV00925
Nitrite Nitrogen	EPA 300.0	0.12	mg/L	1	0.020	1/5/2021	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	4.2	mg/L	0.5	0.20	1/12/2021	NV00925

Customer Sample ID: H-19 (1)

Collect Date/Time: 1/4/2021 17:11

WETLAB Sample ID: 21010076-004

Receive Date: 1/5/2021 13:04

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.29	mg/L	2	0.040	1/6/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.38	mg/L	1	0.020	1/12/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	240	mg/L	1	10	1/6/2021	NV00925
Total Nitrogen	Calc.	9.0	mg/L	1	0.45	1/12/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	220	mg/L	1	25	1/5/2021	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.53	mg/L	1	0.030	1/5/2021	NV00925
Nitrite Nitrogen	EPA 300.0	0.043	mg/L	1	0.020	1/5/2021	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	8.4	mg/L	1	0.40	1/12/2021	NV00925

Customer Sample ID: H-19 (3)

Collect Date/Time: 1/4/2021 17:25

WETLAB Sample ID: 21010076-005

Receive Date: 1/5/2021 13:04

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.56	mg/L	2	0.040	1/6/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.56	mg/L	1	0.020	1/12/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	200	mg/L	1	10	1/6/2021	NV00925
Total Nitrogen	Calc.	4.4	mg/L	1	0.25	1/12/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	150	mg/L	1	25	1/5/2021	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.62	mg/L	1	0.030	1/5/2021	NV00925
Nitrite Nitrogen	EPA 300.0	0.053	mg/L	1	0.020	1/5/2021	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	3.7	mg/L	0.5	0.20	1/12/2021	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected &lt;RL or &lt;MDL (if listed)

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**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: H-19 (4)

Collect Date/Time: 1/4/2021 17:54

WETLAB Sample ID: 21010076-006

Receive Date: 1/5/2021 13:04

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.73	mg/L	2	0.040	1/6/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.81	mg/L	1	0.020	1/19/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	97	mg/L	1	10	1/6/2021	NV00925
Total Nitrogen	Calc.	3.8	mg/L	1	0.25	1/12/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	150	mg/L	1	25	1/5/2021	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.68	mg/L	1	0.030	1/5/2021	NV00925
Nitrite Nitrogen	EPA 300.0	0.043	mg/L	1	0.020	1/5/2021	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	3.1	mg/L	0.5	0.20	1/12/2021	NV00925

Customer Sample ID: CC@CB

Collect Date/Time: 1/4/2021 18:06

WETLAB Sample ID: 21010076-007

Receive Date: 1/5/2021 13:04

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.27	mg/L	1	0.020	1/6/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.15	mg/L	1	0.020	1/12/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	88	mg/L	1	10	1/6/2021	NV00925
Total Nitrogen	Calc.	2.8	mg/L	1	0.30	1/12/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	1700	mg/L	1	25	1/5/2021	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	1.0	mg/L	2	0.060	1/5/2021	NV00925
Nitrite Nitrogen	EPA 300.0	ND	D mg/L	2	0.040	1/5/2021	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	1.7	mg/L	0.5	0.20	1/12/2021	NV00925

Customer Sample ID: AC@TR

Collect Date/Time: 1/4/2021 17:02

WETLAB Sample ID: 21010076-008

Receive Date: 1/5/2021 13:04

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.11	mg/L	1	0.020	1/6/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.13	mg/L	1	0.020	1/12/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	58	mg/L	1	10	1/6/2021	NV00925
Total Nitrogen	Calc.	1.5	mg/L	1	0.25	1/12/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	340	mg/L	1	25	1/5/2021	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.21	mg/L	1	0.030	1/5/2021	NV00925
Nitrite Nitrogen	EPA 300.0	0.039	mg/L	1	0.020	1/5/2021	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	1.3	mg/L	0.5	0.20	1/12/2021	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected &lt;RL or &lt;MDL (if listed)

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**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: C-24 (1)

Collect Date/Time: 1/4/2021 11:25

WETLAB Sample ID: 21010076-009

Receive Date: 1/5/2021 13:04

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.19	mg/L	1	0.020	1/6/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.36	mg/L	1	0.020	1/12/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	170	mg/L	1	10	1/6/2021	NV00925
Total Nitrogen	Calc.	3.3	mg/L	1	0.25	1/12/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	360	mg/L	1	25	1/5/2021	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.35	mg/L	1	0.030	1/5/2021	NV00925
Nitrite Nitrogen	EPA 300.0	0.070	mg/L	1	0.020	1/5/2021	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	2.9	mg/L	0.5	0.20	1/12/2021	NV00925

Customer Sample ID: C-24 (2)

Collect Date/Time: 1/4/2021 12:20

WETLAB Sample ID: 21010076-010

Receive Date: 1/5/2021 13:04

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.17	mg/L	1	0.020	1/6/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.22	mg/L	1	0.020	1/19/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	73	mg/L	1	10	1/6/2021	NV00925
Total Nitrogen	Calc.	2.0	mg/L	1	0.25	1/12/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	190	mg/L	1	25	1/5/2021	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.21	mg/L	1	0.030	1/5/2021	NV00925
Nitrite Nitrogen	EPA 300.0	0.043	mg/L	1	0.020	1/5/2021	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	1.8	mg/L	0.5	0.20	1/12/2021	NV00925

Customer Sample ID: C-24 (3)

Collect Date/Time: 1/4/2021 15:59

WETLAB Sample ID: 21010076-011

Receive Date: 1/5/2021 13:04

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.17	mg/L	1	0.020	1/6/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.45	mg/L	1	0.020	1/12/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	190	mg/L	1	10	1/6/2021	NV00925
Total Nitrogen	Calc.	2.5	mg/L	1	0.25	1/12/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	200	mg/L	1	25	1/6/2021	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.21	mg/L	1	0.030	1/5/2021	NV00925
Nitrite Nitrogen	EPA 300.0	0.036	mg/L	1	0.020	1/5/2021	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	2.3	mg/L	0.5	0.20	1/12/2021	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected &lt;RL or &lt;MDL (if listed)

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**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
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**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: C-24 (4)

Collect Date/Time: 1/4/2021 16:23

WETLAB Sample ID: 21010076-012

Receive Date: 1/5/2021 13:04

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.16	mg/L	1	0.020	1/6/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.28	mg/L	1	0.020	1/12/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	100	mg/L	1	10	1/6/2021	NV00925
Total Nitrogen	Calc.	1.7	mg/L	1	0.25	1/12/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	110	mg/L	1	25	1/6/2021	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.18	mg/L	1	0.030	1/5/2021	NV00925
Nitrite Nitrogen	EPA 300.0	ND	mg/L	1	0.020	1/5/2021	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	1.5	mg/L	0.5	0.20	1/12/2021	NV00925

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475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
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 Elko, Nevada 89801  
 tel (775) 777-9933  
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 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
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# Western Environmental Testing Laboratory

## QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21010066	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC21010083	Blank 1	Nitrate Nitrogen	EPA 300.0	ND			mg/L
		Nitrite Nitrogen	EPA 300.0	ND			mg/L
QC21010089	Blank 1	Orthophosphate, as P	SM 4500-P E	ND			mg/L
QC21010126	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC21010140	Blank 1	Total Suspended Solids (TSS)	SM 2540D	ND			mg/L
QC21010223	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC21010285	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC21010325	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21010066	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	147	150	98	mg/L
QC21010066	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	140	150	93	mg/L
QC21010083	LCS 1	Nitrate Nitrogen	EPA 300.0	0.494	0.500	99	mg/L
		Nitrite Nitrogen	EPA 300.0	0.499	0.500	100	mg/L
QC21010089	LCS 1	Orthophosphate, as P	SM 4500-P E	0.258	0.250	103	mg/L
QC21010126	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	149	150	99	mg/L
QC21010126	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	152	150	101	mg/L
QC21010140	LCS 1	Total Suspended Solids (TSS)	SM 2540D	200	200	100	mg/L
QC21010140	LCS 2	Total Suspended Solids (TSS)	SM 2540D	200	200	100	mg/L
QC21010223	LCS 1	Total Phosphorous as P	SM 4500-P E	0.262	0.250	105	mg/L
QC21010285	LCS 1	Total Phosphorous as P	SM 4500-P E	0.258	0.250	103	mg/L
QC21010325	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	0.996	1.00	100	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC21010066	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	20120949-003	192	190	mg/L	1 %
QC21010066	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	21010076-001	832	790	mg/L	5 %
QC21010126	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	21010046-002	936	930	mg/L	1 %
QC21010126	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	21010065-002	1130	1124	mg/L	<1%
QC21010140	Duplicate 1	Total Suspended Solids (TSS)	SM 2540D	21010065-002	ND	ND	mg/L	<1%
QC21010140	Duplicate 2	Total Suspended Solids (TSS)	SM 2540D	21010106-001	ND	ND	mg/L	<1%

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC21010083	MS 1	Nitrate Nitrogen	EPA 300.0	21010076-006	0.681	1.21	1.22	0.5	mg/L	106	107	<1
		Nitrite Nitrogen	EPA 300.0	21010076-006	0.043	0.169	0.171	0.125	mg/L	101	103	1
QC21010083	MS 2	Nitrate Nitrogen	EPA 300.0	21010076-012	0.178	0.686	0.692	0.5	mg/L	102	103	<1
		Nitrite Nitrogen	EPA 300.0	21010076-012	ND	0.135	0.136	0.125	mg/L	98	99	<1
QC21010089	MS 1	Orthophosphate, as P	SM 4500-P E	21010076-001	0.264	0.501	0.504	0.25	mg/L	95	96	<1
QC21010089	MS 2	Orthophosphate, as P	SM 4500-P E	21010076-011	0.168	0.412	0.417	0.25	mg/L	98	100	1
QC21010223	MS 1	Total Phosphorous as P	SM 4500-P E	21010046-002	0.076	0.329	0.322	0.25	mg/L	101	98	2
QC21010223	MS 2	Total Phosphorous as P	SM 4500-P E	21010158-006	0.100	0.363	0.367	0.25	mg/L	105	107	1
QC21010285	MS 1	Total Phosphorous as P	SM 4500-P E	21010116-002	0.132	M 0.264	0.275	0.25	mg/L	NC	NC	NC
QC21010285	MS 2	Total Phosphorous as P	SM 4500-P E	21010167-002	0.056	0.275	0.278	0.25	mg/L	88	89	1
QC21010325	MS 1	Total Kjeldahl Nitrogen	EPA 351.2	21010076-007	1.71	2.19	2.16	0.5	mg/L	97	90	1
QC21010325	MS 2	Total Kjeldahl Nitrogen	EPA 351.2	21010147-002	10.4	SC 11.5	11.5	0.5	mg/L	NC	NC	NC

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 8 of 8

### SPARKS

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
fax (775) 355-0817  
EPA LAB ID: NV00925 - ELAP No: 2523

### ELKO

1084 Lamoille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
EPA LAB ID: NV00926

### LAS VEGAS

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Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932





**WETLAB**  
WESTERN ENVIRONMENTAL  
TESTING LABORATORY

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3230 Polaris Ave., Suite 4 | Las Vegas, Nevada 89102  
tel (702) 475-8899 | fax (702) 776-6152

WETLAB Order ID. 21010076

Sparks \_\_\_\_\_  
Elko \_\_\_\_\_  
LV \_\_\_\_\_  
Report Due Date \_\_\_\_\_  
Page 1 of 2

Client Balance Hydrologics  
Address ON File  
City, State & Zip \_\_\_\_\_  
Contact Ben Trustman  
Phone \_\_\_\_\_ Collector's Name \_\_\_\_\_  
Fax \_\_\_\_\_ Project 213136  
P.O. Number \_\_\_\_\_ PWS Number \_\_\_\_\_

**Turnaround Time Requirements**  
Standard X  
5 Day\* (25%) \_\_\_\_\_ 72 Hour\* (50%) \_\_\_\_\_  
48 Hour\* (100%) \_\_\_\_\_ 24 Hour\* (200%) \_\_\_\_\_  
\*Surcharges Will Apply

**Samples Collected From Which State?**  
NV X CA \_\_\_\_\_  
Other \_\_\_\_\_

**Compliance Monitoring?**  
Yes \_\_\_\_\_ No (circled)

**Report to Regulatory Agency?**  
Yes \_\_\_\_\_ No (circled)

**Report Results Via**  
PDF (circled) EDD \_\_\_\_\_  
Other Excel

**Standard QC Required?**  
Yes \_\_\_\_\_ No \_\_\_\_\_

Email btrustman@balancehydro.com  
**Billing Address (if different than Client Address)**  
Company on file  
Address \_\_\_\_\_  
City, State & Zip \_\_\_\_\_  
Contact Rachel Boitano  
Phone \_\_\_\_\_ Fax \_\_\_\_\_  
Email rboitano@balancehydro.com

**Analyses Requested**

NO. OF SAMPLE CONTAINERS	Total N	Total P	OrthoP	NO3	TKSS	TSS	Spl. No.
2	X	X	X	X	X	X	
2	X	X	X	X	X	X	
2	X	X	X	X	X	X	
2	X	X	X	X	X	X	
2	X	X	X	X	X	X	2101 2
2	X	X	X	X	X	X	0076 12
2	X	X	X	X	X	X	
2	X	X	X	X	X	X	

SAMPLE ID/LOCATION	DATE	TIME	PRES TYPE *	NO. OF SAMPLE CONTAINERS **	Total N	Total P	OrthoP	NO3	TKSS	TSS	Spl. No.
D-16(1)	1/4/21	16:22		2	X	X	X	X	X	X	
D-16(3)	1/4/21	16:47		2	X	X	X	X	X	X	
D-16(4)	1/4/21	17:17		2	X	X	X	X	X	X	
H-19(1)	1/4/21	17:11		2	X	X	X	X	X	X	
H-19(3)	1/4/21	17:25		2	X	X	X	X	X	X	2101 2
H-19(4)	1/4/21	17:54		2	X	X	X	X	X	X	0076 12
CC@CB	1/4/21	18:06		2	X	X	X	X	X	X	
AC@TR	1/4/21	17:02		2	X	X	X	X	X	X	

Instructions/Comments/Special Requirements:

Sample Matrix Key\*\* DW = Drinking Water WW = Wastewater SW = Surface Water MW = Monitoring Well SD = Solid/Sludge SO = Soil HW = Hazardous Waste OTHER: \_\_\_\_\_

\*SAMPLE PRESERVATIVES: 1=Unpreserved 2=H2SO4 3=NaOH 4=HCl 5=HNO3 6=Na2S2O3 7=ZnOAc+NaOH 8=NH4Cl 9=H3PO4

Temp	On Ice	Custody Seal	DATE	TIME	Samples Relinquished By	Samples Received By
23 °C	Y / N	Y / <u>N</u>	1-5-21	1304	<i>[Signature]</i>	<i>[Signature]</i>
°C	Y / N	Y / N				
°C	Y / N	Y / N				
°C	Y / N	Y / N				

WETLAB'S Standard Terms and Conditions apply unless written agreements specify otherwise. Payment terms are Net 30.

Client/Collector attests to the validity and authenticity of this (these) sample(s) and, is (are) aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636). \_\_\_\_\_ initial

To the maximum extent permitted by law, the Client agrees to limit the liability of WETLAB for the Client's damages to the total compensation received, unless other agreements are made in writing. This limitation shall apply regardless of the cause of action or legal theory pled or asserted. \_\_\_\_\_ initial

WETLAB will dispose of samples 90 days from sample receipt. Client may request a longer sample storage time for an additional fee. 301.2E

Please contact your Project Manager for details. \_\_\_\_\_ initial



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WETLAB Order ID 21010070

Sparks \_\_\_\_\_

Elko \_\_\_\_\_

LV \_\_\_\_\_

Report \_\_\_\_\_

Due Date \_\_\_\_\_

Page 2 of 2

Client		Turnaround Time Requirements	
Address		Standard _____	
City, State & Zip		5 Day* (25%) _____ 72 Hour* (50%) _____	
Contact		48 Hour* (100%) _____ 24 Hour* (200%) _____	
Phone		*Surcharges Will Apply	
Collector's Name		Samples Collected From Which State?	
Fax		Report Results Via	
Project		NV _____ CA _____	
PWS Number		Other _____	
		Compliance Monitoring?	
		Yes _____ No _____	
		Report to Regulatory Agency?	
		Yes _____ No _____	
		Standard QC Required?	
		Yes _____ No _____	

SAMPLE ID/LOCATION	DATE	TIME	PRES TYPE *	S A M P L E T Y P E S **	NO. OF C O N T A I N E R S	Analyses Requested							Spl. No.	
						Total N	Total P	Ortho P	NO3	TDS	TSS			
C-24(1)	1/4/21	11:25		Ag	2	X	X	X	X	X	X			
C-24(2)	1/4/21	12:20			2	X	X	X	X	X	X			
C-24(3)	1/4/21	15:59			2	X	X	X	X	X	X			
C-24(4)	1/4/21	16:29			2	X	X	X	X	X	X		2101	2

2101 2  
0076 12

Instructions/Comments/Special Requirements:

Sample Matrix Key\*\* DW = Drinking Water WW = Wastewater SW = Surface Water MW = Monitoring Well SD = Solid/Sludge SO = Soil HW = Hazardous Waste OTHER: \_\_\_\_\_

\*SAMPLE PRESERVATIVES: 1=Unpreserved 2=H2SO4 3=NaOH 4=HCl 5=HNO3 6=Na2S2O3 7=ZnOAc+NaOH 8=NH4Cl 9=H3PO4

Temp	On Ice	Custody Seal	DATE	TIME	Samples Relinquished By	Samples Received By
2.3°C	(Y) N	Y / (N)	1.5.21	1304		
°C	Y / N	Y / N				
°C	Y / N	Y / N				
°C	Y / N	Y / N				

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Client/Collector attests to the validity and authenticity of this (these) sample(s) and, is (are) aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636). \_\_\_\_\_ initial

To the maximum extent permitted by law, the Client agrees to limit the liability of WETLAB for the Client's damages to the total compensation received, unless other agreements are made in writing. This limitation shall apply regardless of the cause of action or legal theory pled or asserted. \_\_\_\_\_ initial

WETLAB will dispose of samples 90 days from sample receipt. Client may request a longer sample storage time for an additional fee. 301.2E

Please contact your Project Manager for details. \_\_\_\_\_ initial

4/12/2021

Balance Hydrologics  
800 Baucroft Ave. Suite 101  
Berkeley, CA 94710  
Attn: Ben Trustman

OrderID: 21030851

Dear: Ben Trustman

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

The samples were received by WETLAB-Western Environmental Testing Laboratory in good condition on 3/29/2021. Additional comments are located on page 2 of this report.

If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,



Cory Baker  
QA Specialist



Mckenna Oh  
Project Manager

MckennaO@wetlaboratory.com  
(775) 200-9876

**SPARKS**

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
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fax (775) 355-0817  
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fax (702) 622-2868  
EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Report Comments

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Balance Hydrologics - 21030851

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### Specific Report Comments

None

### Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
- D -- Due to the sample matrix dilution was required in order to properly detect and report the analyte. The reporting limit has been adjusted accordingly.
- HT -- Sample analyzed beyond the accepted holding time
- J -- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit. The reported result should be considered an estimate.
- K -- The TPH Diesel Concentration reported here likely includes some heavier TPH Oil hydrocarbons reported in the TPH Diesel range as per EPA 8015.
- L -- The TPH Oil Concentration reported here likely includes some lighter TPH Diesel hydrocarbons reported in the TPH Oil range as per EPA 8015.
- M -- The matrix spike/matrix spike duplicate (MS/MSD) values for the analysis of this parameter were outside acceptance criteria due to probable matrix interference. The reported result should be considered an estimate.
- N -- There was insufficient sample available to perform a spike and/or duplicate on this analytical batch.
- NC -- Not calculated due to matrix interference
- QD -- The sample duplicate or matrix spike duplicate analysis demonstrated sample imprecision. The reported result should be considered an estimate.
- QL -- The result for the laboratory control sample (LCS) was outside WETLAB acceptance criteria and reanalysis was not possible. The reported data should be considered an estimate.
- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
- SC -- Spike recovery not calculated. Sample concentration >4X the spike amount; therefore, the spike could not be adequately recovered
- U -- The analyte was analyzed for, but was not detected above the level of the reported sample reporting/quantitation limit. The reported result should be considered an estimate.

### General Lab Comments

Per method recommendation (section 4.4), Samples analyzed by methods EPA 300.0 and EPA 300.1 have been filtered prior to analysis.

The following is an interpretation of the results from EPA method 9223B:

A result of zero (0) indicates absence for both coliform and Escherichia coli meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

Per federal regulation the holding time for the following parameters in aqueous/water samples is 15 minutes: Residual Chlorine, pH, Dissolved Oxygen, Sulfite.

---

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Elko, Nevada 89801  
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EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Analytical Report

**Balance Hydrologics**  
**800 Baucroft Ave. Suite 101**  
**Berkeley, CA 94710**

**Attn:** Ben Trustman  
**Phone:** (510-704-1000) **Fax:** NoFax  
**PO\Project:** 213136

**Date Printed:** 4/12/2021  
**OrderID:** 21030851

**Customer Sample ID:** NTD@ORD

**Collect Date/Time:** 3/29/2021 11:00

**WETLAB Sample ID:** 21030851-001

**Receive Date:** 3/29/2021 15:15

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.33	mg/L	1	0.020	3/30/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.42	mg/L	1	0.020	4/1/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	10	mg/L	1	10	3/30/2021	NV00925
Total Nitrogen	Calc.	2.6	mg/L	1	0.22	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	1100	mg/L	1	25	3/30/2021	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	1.0	mg/L	1	0.020	4/5/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	1.6	mg/L	0.5	0.20	4/7/2021	NV00925

**Customer Sample ID:** SBC@RHR

**Collect Date/Time:** 3/29/2021 11:45

**WETLAB Sample ID:** 21030851-002

**Receive Date:** 3/29/2021 15:15

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.078	mg/L	1	0.020	3/30/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.093	mg/L	1	0.020	4/1/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	11	mg/L	1	10	3/30/2021	NV00925
Total Nitrogen	Calc.	0.37	mg/L	1	0.22	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	160	mg/L	1	25	3/30/2021	NV00925
<b>Microbiological Analyses</b>							
Total Coliform (MPN)	SM 9223B (Quantitray)	488.4	MPN/100ml	1	1.0	3/29/2021	NV00925
Escherichia Coli (MPN)	SM 9223B (Quantitray)	52.8	MPN/100ml	1	1.0	3/29/2021	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.074	mg/L	1	0.020	4/5/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.30	mg/L	0.5	0.20	4/7/2021	NV00925

**Customer Sample ID:** SBC@MTR

**Collect Date/Time:** 3/29/2021 11:50

**WETLAB Sample ID:** 21030851-003

**Receive Date:** 3/29/2021 15:15

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.078	mg/L	1	0.020	3/30/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.10	mg/L	1	0.020	4/1/2021	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 3 of 7

### SPARKS

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
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1084 Lamoille Hwy  
 Elko, Nevada 89801  
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 fax (775) 777-9933  
 EPA LAB ID: NV00926

### LAS VEGAS

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: SBC@MTR

Collect Date/Time: 3/29/2021 11:50

WETLAB Sample ID: 21030851-003

Receive Date: 3/29/2021 15:15

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
Total Suspended Solids (TSS)	SM 2540D	11	mg/L	1	10	3/30/2021	NV00925
Total Nitrogen	Calc.	0.39	mg/L	1	0.22	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	160	mg/L	1	25	3/30/2021	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.075	mg/L	1	0.020	4/5/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.32	mg/L	0.5	0.20	4/7/2021	NV00925

Customer Sample ID: NTD@BFD (1)

Collect Date/Time: 3/29/2021 10:35

WETLAB Sample ID: 21030851-004

Receive Date: 3/29/2021 15:15

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.17	mg/L	1	0.020	3/30/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.23	mg/L	1	0.020	4/1/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	ND	mg/L	1	10	3/30/2021	NV00925
Total Nitrogen	Calc.	2.2	mg/L	1	0.22	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	1100	mg/L	1	25	3/30/2021	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.92	mg/L	1	0.020	4/5/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	1.3	mg/L	0.5	0.20	4/7/2021	NV00925

Customer Sample ID: WC@OVH

Collect Date/Time: 3/29/2021 12:15

WETLAB Sample ID: 21030851-005

Receive Date: 3/29/2021 15:15

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	ND	mg/L	1	0.020	3/30/2021	NV00925
Total Phosphorous as P	SM 4500-P E	ND	mg/L	1	0.020	4/5/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	ND	mg/L	1	10	3/30/2021	NV00925
Total Nitrogen	Calc.	ND	mg/L	1	0.22	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	88	mg/L	1	25	3/30/2021	NV00925
<b>Microbiological Analyses</b>							
Total Coliform (MPN)	SM 9223B (Quantitray)	114.5	MPN/100ml	1	1.0	3/29/2021	NV00925
Escherichia Coli (MPN)	SM 9223B (Quantitray)	30.5	MPN/100ml	1	1.0	3/29/2021	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	ND	mg/L	1	0.020	4/5/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	ND	mg/L	0.5	0.20	4/7/2021	NV00925

Customer Sample ID: TC@SMP

Collect Date/Time: 3/29/2021 12:55

WETLAB Sample ID: 21030851-006

Receive Date: 3/29/2021 15:15

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.047	mg/L	1	0.020	3/30/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.082	mg/L	1	0.020	4/5/2021	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected &lt;RL or &lt;MDL (if listed)

Page 4 of 7

**SPARKS**

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 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: TC@SMP

Collect Date/Time: 3/29/2021 12:55

WETLAB Sample ID: 21030851-006

Receive Date: 3/29/2021 15:15

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
Total Suspended Solids (TSS)	SM 2540D	ND	mg/L	1	10	3/30/2021	NV00925
Total Nitrogen	Calc.	ND	mg/L	1	0.22	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	88	mg/L	1	25	3/30/2021	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	ND	mg/L	1	0.020	4/5/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.20	mg/L	0.5	0.20	4/7/2021	NV00925

Customer Sample ID: EC@KL

Collect Date/Time: 3/29/2021 13:50

WETLAB Sample ID: 21030851-007

Receive Date: 3/29/2021 15:15

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.078	mg/L	1	0.020	3/30/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.082	mg/L	1	0.020	4/5/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	ND	mg/L	1	10	3/30/2021	NV00925
Total Nitrogen	Calc.	0.90	mg/L	1	0.25	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	320	mg/L	1	25	3/30/2021	NV00925
<b>Microbiological Analyses</b>							
Total Coliform (MPN)	SM 9223B (Quantitray)	>2419.6	MPN/100ml	1	1.0	3/29/2021	NV00925
Escherichia Coli (MPN)	SM 9223B (Quantitray)	18.5	MPN/100ml	1	1.0	3/29/2021	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.64	mg/L	1	0.030	3/30/2021	NV00925
Nitrite Nitrogen	EPA 300.0	ND	mg/L	1	0.020	3/30/2021	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	0.26	mg/L	0.5	0.20	4/7/2021	NV00925

Customer Sample ID: SBC@NAR

Collect Date/Time: 3/29/2021 14:20

WETLAB Sample ID: 21030851-008

Receive Date: 3/29/2021 15:15

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.23	mg/L	1	0.020	3/30/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.27	mg/L	1	0.020	4/5/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	56	mg/L	1	10	3/30/2021	NV00925
Total Nitrogen	Calc.	0.60	mg/L	1	0.22	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	520	mg/L	1	25	3/30/2021	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	ND	mg/L	1	0.020	4/5/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.59	mg/L	0.5	0.20	4/7/2021	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected &lt;RL or &lt;MDL (if listed)

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**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21030990	Blank 1	Total Suspended Solids (TSS)	SM 2540D	ND			mg/L
QC21030995	Blank 1	Orthophosphate, as P	SM 4500-P E	ND			mg/L
QC21031014	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC21031020	Blank 1	Total Coliform (MPN)	SM 9223B (Quant	ND			MPN/100ml
		Escherichia Coli (MPN)	SM 9223B (Quant	ND			MPN/100ml
QC21031041	Blank 1	Nitrate Nitrogen	EPA 300.0	ND			mg/L
		Nitrite Nitrogen	EPA 300.0	ND			mg/L
QC21040033	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC21040110	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC21040112	Blank 1	Nitrate + Nitrite Nitrogen	EPA 353.2	ND			mg/L
QC21040113	Blank 1	Nitrate + Nitrite Nitrogen	EPA 353.2	ND			mg/L
QC21040221	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21030990	LCS 1	Total Suspended Solids (TSS)	SM 2540D	198	200	99	mg/L
QC21030990	LCS 2	Total Suspended Solids (TSS)	SM 2540D	197	200	99	mg/L
QC21030995	LCS 1	Orthophosphate, as P	SM 4500-P E	0.248	0.250	99	mg/L
QC21031014	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	148	150	99	mg/L
QC21031014	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	150	150	100	mg/L
QC21031041	LCS 1	Nitrate Nitrogen	EPA 300.0	0.482	0.500	96	mg/L
		Nitrite Nitrogen	EPA 300.0	0.478	0.500	96	mg/L
QC21040033	LCS 1	Total Phosphorous as P	SM 4500-P E	0.223	0.250	89	mg/L
QC21040110	LCS 1	Total Phosphorous as P	SM 4500-P E	0.224	0.250	90	mg/L
QC21040112	LCS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	0.953	1.00	95	mg/L
QC21040113	LCS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	0.959	1.00	96	mg/L
QC21040221	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	1.04	1.00	104	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC21030990	Duplicate 1	Total Suspended Solids (TSS)	SM 2540D	21030752-002	ND	ND	mg/L	NA
QC21030990	Duplicate 2	Total Suspended Solids (TSS)	SM 2540D	21030851-002	10.7	10.7	mg/L	<1%
QC21031014	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	21030835-001	360	356	mg/L	1 %
QC21031014	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	21030851-004	1052	1072	mg/L	2 %

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC21030995	MS 1	Orthophosphate, as P	SM 4500-P E	21030851-005	ND	0.264	0.266	0.25	mg/L	99	100	<1
QC21031041	MS 1	Nitrate Nitrogen	EPA 300.0	21030851-007	0.636	1.15	1.16	0.5	mg/L	104	105	<1
		Nitrite Nitrogen	EPA 300.0	21030851-007	ND	0.111	0.101	0.125	mg/L	89	81	9
QC21040033	MS 1	Total Phosphorous as P	SM 4500-P E	21030809-002	0.123	0.357	0.373	0.25	mg/L	94	100	4
QC21040033	MS 2	Total Phosphorous as P	SM 4500-P E	21030825-002	0.061	M, 0.382	0.361	0.25	mg/L	NC	NC	NC
QC21040110	MS 1	Total Phosphorous as P	SM 4500-P E	21030856-002	0.113	0.360	0.393	0.25	mg/L	99	112	9
QC21040110	MS 2	Total Phosphorous as P	SM 4500-P E	21030900-001	0.278	0.529	0.521	0.25	mg/L	101	97	2
QC21040112	MS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	21020564-001	ND	5.20	5.12	1	mg/L	104	102	2
QC21040112	MS 2	Nitrate + Nitrite Nitrogen	EPA 353.2	21030814-002	0.632	5.71	5.74	1	mg/L	102	102	<1
QC21040113	MS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	21030835-005	0.272	5.45	5.40	1	mg/L	104	102	<1
QC21040113	MS 2	Nitrate + Nitrite Nitrogen	EPA 353.2	21030863-002	ND	5.21	5.23	1	mg/L	104	104	<1
QC21040221	MS 1	Total Kjeldahl Nitrogen	EPA 351.2	21030900-001	0.492	M 0.906	0.927	0.5	mg/L	NC	NC	NC

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

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### SPARKS

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
fax (775) 355-0817  
EPA LAB ID: NV00925 - ELAP No: 2523

### ELKO

1084 Lamoille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
EPA LAB ID: NV00926

### LAS VEGAS

3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932



QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC21040221	MS 2	Total Kjeldahl Nitrogen	EPA 351.2	21030851-001	1.58	2.05	2.13	0.5	mg/L	94	110	4

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1084 Lamaille Hwy  
Elko, Nevada 89801  
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Las Vegas, Nevada 89102  
tel (702) 475-8899  
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# WETLAB

WESTERN ENVIRONMENTAL TESTING LABORATORY

Specializing in Soil, Hazardous Waste and Water Analysis.

475 E. Greg Street #119 | Sparks, Nevada 89431 | www.WETLaboratory.com  
tel (775) 355-0202 | fax (775) 355-0817  
1084 Lamoille Highway | Elko, Nevada 89801  
tel (775) 777-9933 | fax (775) 777-9933  
3230 Polaris Ave., Suite 4 | Las Vegas, Nevada 89102  
tel (702) 475-8899 | fax (702) 776-6152

WETLAB Order ID. 21030851

Sparks \_\_\_\_\_  
Elko \_\_\_\_\_  
LV \_\_\_\_\_  
Report Due Date \_\_\_\_\_  
Page \_\_\_\_\_ of \_\_\_\_\_

Client Balance Hydrologics  
Address \_\_\_\_\_  
City, State & Zip ON FILE  
Contact \_\_\_\_\_  
Phone \_\_\_\_\_ Collector's Name \_\_\_\_\_  
Fax \_\_\_\_\_ Project 213136  
P.O. Number \_\_\_\_\_ PWS Number \_\_\_\_\_

Turnaround Time Requirements  
Standard  \_\_\_\_\_  
5 Day\* (25%) \_\_\_\_\_ 72 Hour\* (50%) \_\_\_\_\_  
48 Hour\* (100%) \_\_\_\_\_ 24 Hour\* (200%) \_\_\_\_\_  
\*Surcharges Will Apply

Samples Collected From Which State?  
NV  CA \_\_\_\_\_  
Other \_\_\_\_\_

Report Results Via  
 PDF  EDD  
Other Excel

Compliance Monitoring?  
Yes  No

Report to Regulatory Agency?  
Yes  No

Standard QC Required?  
Yes  No

Email bfrustman@balancehydro.com  
Billing Address (if different than Client Address)  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City, State & Zip \_\_\_\_\_  
Contact \_\_\_\_\_  
Phone \_\_\_\_\_ Fax \_\_\_\_\_  
Email \_\_\_\_\_

S A M P L E T Y P E **	NO. OF C O N T A I N E R S	Analyses Requested							Spl. No.
		Total U	Total P	NO3	Ortho P	TDS	TSS	Ecoli	
	2	X	X	X	X	X			
	3	X	X	X	X	X	X		
	2	X	X	X	X	X			
	2	X	X	X	X	X			
	3	X	X	X	X	X	X		
	2	X	X	X	X	X			
	3	X	X	X	X	X	X		
	2	X	X	X	X	X			

SAMPLE ID/LOCATION	DATE	TIME	PRES TYPE *
<del>NTD @ BFD</del> NTD @ ORD	3/29/21	11:00	
SBC @ RHR	3/29/21	11:45	
SBC @ MTR	3/29/21	11:50	
NTD @ BFD (1)	3/29/21	10:35	
WLC @ OVH	3/29/21	12:15	
TC @ SMP	3/29/21	12:55	
EC @ KL	3/29/21	13:50	
SBC @ NAR	3/29/21	14:20	

Instructions/Comments/Special Requirements:

Sample Matrix Key\*\* DW = Drinking Water WW = Wastewater SW = Surface Water MW = Monitoring Well SD = Solid/Sludge SO = Soil HW = Hazardous Waste OTHER: \_\_\_\_\_

\*SAMPLE PRESERVATIVES: 1=Unpreserved 2=H2SO4 3=NaOH 4=HCl 5=HNO3 6=Na2S2O3 7=ZnOAc+NaOH 8=NH4Cl 9=H3PO4

Temp	On Ice	Custody Seal	DATE	TIME	Samples Relinquished By	Samples Received By
8 °C	Y / N	Y / N	3-29	3:52		
°C	Y / N	Y / N				
°C	Y / N	Y / N				
°C	Y / N	Y / N				

WETLAB'S Standard Terms and Conditions apply unless written agreements specify otherwise. Payment terms are Net 30.

Client/Collector attests to the validity and authenticity of this (these) sample(s) and, is (are) aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636). initial  
To the maximum extent permitted by law, the Client agrees to limit the liability of WETLAB for the Client's damages to the total compensation received, unless other agreements are made in writing. This limitation shall apply regardless of the cause of action or legal theory pled or asserted. initial  
WETLAB will dispose of samples 90 days from sample receipt. Client may request a longer sample storage time for an additional fee. 301.2E  
Please contact your Project Manager for details. initial

4/13/2021

Balance Hydrologics  
800 Baucroft Ave. Suite 101  
Berkeley, CA 94710  
Attn: Ben Trustman

OrderID: 21030900

Dear: Ben Trustman

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

The samples were received by WETLAB-Western Environmental Testing Laboratory in good condition on 3/30/2021. Additional comments are located on page 2 of this report.

If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,



Cory Baker  
QA Specialist



Mckenna Oh  
Project Manager

MckennaO@wetlaboratory.com  
(775) 200-9876

**SPARKS**

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
fax (775) 355-0817  
EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamaille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
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3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Report Comments

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Balance Hydrologics - 21030900

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### Specific Report Comments

None

### Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
- D -- Due to the sample matrix dilution was required in order to properly detect and report the analyte. The reporting limit has been adjusted accordingly.
- HT -- Sample analyzed beyond the accepted holding time
- J -- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit. The reported result should be considered an estimate.
- K -- The TPH Diesel Concentration reported here likely includes some heavier TPH Oil hydrocarbons reported in the TPH Diesel range as per EPA 8015.
- L -- The TPH Oil Concentration reported here likely includes some lighter TPH Diesel hydrocarbons reported in the TPH Oil range as per EPA 8015.
- M -- The matrix spike/matrix spike duplicate (MS/MSD) values for the analysis of this parameter were outside acceptance criteria due to probable matrix interference. The reported result should be considered an estimate.
- N -- There was insufficient sample available to perform a spike and/or duplicate on this analytical batch.
- NC -- Not calculated due to matrix interference
- QD -- The sample duplicate or matrix spike duplicate analysis demonstrated sample imprecision. The reported result should be considered an estimate.
- QL -- The result for the laboratory control sample (LCS) was outside WETLAB acceptance criteria and reanalysis was not possible. The reported data should be considered an estimate.
- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
- SC -- Spike recovery not calculated. Sample concentration >4X the spike amount; therefore, the spike could not be adequately recovered
- U -- The analyte was analyzed for, but was not detected above the level of the reported sample reporting/quantitation limit. The reported result should be considered an estimate.

### General Lab Comments

Per method recommendation (section 4.4), Samples analyzed by methods EPA 300.0 and EPA 300.1 have been filtered prior to analysis.

The following is an interpretation of the results from EPA method 9223B:

A result of zero (0) indicates absence for both coliform and Escherichia coli meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

Per federal regulation the holding time for the following parameters in aqueous/water samples is 15 minutes: Residual Chlorine, pH, Dissolved Oxygen, Sulfite.

---

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Elko, Nevada 89801  
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Las Vegas, Nevada 89102  
tel (702) 475-8899  
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EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Analytical Report

**Balance Hydrologics**  
**800 Baucroft Ave. Suite 101**  
**Berkeley, CA 94710**

**Attn:** Ben Trustman  
**Phone:** (510-704-1000) **Fax:** NoFax  
**PO\Project:** 213136

**Date Printed:** 4/13/2021  
**OrderID:** 21030900

**Customer Sample ID:** CC @ CB

**Collect Date/Time:** 3/30/2021 12:35

**WETLAB Sample ID:** 21030900-001

**Receive Date:** 3/30/2021 16:32

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b><u>General Chemistry</u></b>							
Orthophosphate, as P	SM 4500-P E	0.26	mg/L	1	0.020	3/31/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.28	mg/L	1	0.020	4/5/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	ND	mg/L	1	10	3/31/2021	NV00925
Total Nitrogen	Calc.	1.6	mg/L	1	0.30	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	2100	mg/L	1	25	3/31/2021	NV00925
<b><u>Anions by Ion Chromatography</u></b>							
Nitrate Nitrogen	EPA 300.0	1.1	mg/L	2	0.060	3/30/2021	NV00925
Nitrite Nitrogen	EPA 300.0	ND	D mg/L	2	0.040	3/30/2021	NV00925
<b><u>Flow Injection Analyses</u></b>							
Total Kjeldahl Nitrogen	EPA 351.2	0.49	M mg/L	0.5	0.20	4/7/2021	NV00925

**Customer Sample ID:** BS @ SBC (1)

**Collect Date/Time:** 3/29/2021 12:00

**WETLAB Sample ID:** 21030900-002

**Receive Date:** 3/30/2021 16:32

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b><u>General Chemistry</u></b>							
Orthophosphate, as P	SM 4500-P E	0.071	mg/L	1	0.020	3/31/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.11	mg/L	1	0.020	4/5/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	110	mg/L	1	10	3/31/2021	NV00925
Total Nitrogen	Calc.	1.6	mg/L	1	0.22	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	210	mg/L	1	25	3/31/2021	NV00925
<b><u>Flow Injection Analyses</u></b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.38	mg/L	1	0.020	4/6/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	1.2	mg/L	0.5	0.20	4/7/2021	NV00925

**Customer Sample ID:** BS @ SBC (2)

**Collect Date/Time:** 3/29/2021 18:00

**WETLAB Sample ID:** 21030900-003

**Receive Date:** 3/30/2021 16:32

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b><u>General Chemistry</u></b>							
Orthophosphate, as P	SM 4500-P E	0.082	mg/L	1	0.020	3/31/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.16	mg/L	1	0.020	4/5/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	41	mg/L	1	10	3/31/2021	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 3 of 8

### SPARKS

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
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### ELKO

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

### LAS VEGAS

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: BS @ SBC (2)

Collect Date/Time: 3/29/2021 18:00

WETLAB Sample ID: 21030900-003

Receive Date: 3/30/2021 16:32

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
Total Nitrogen	Calc.	0.96	mg/L	1	0.22	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	180	mg/L	1	25	3/31/2021	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.39	mg/L	1	0.020	4/6/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.57	mg/L	0.5	0.20	4/7/2021	NV00925

Customer Sample ID: BS @ SBC (3)

Collect Date/Time: 3/30/2021 00:00

WETLAB Sample ID: 21030900-004

Receive Date: 3/30/2021 16:32

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.083	mg/L	1	0.020	3/31/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.11	mg/L	1	0.020	4/5/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	22	mg/L	1	10	3/31/2021	NV00925
Total Nitrogen	Calc.	0.87	mg/L	1	0.22	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	220	mg/L	1	25	3/31/2021	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.40	mg/L	1	0.020	4/6/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.47	mg/L	0.5	0.20	4/7/2021	NV00925

Customer Sample ID: BS @ SBC (4)

Collect Date/Time: 3/30/2021 06:00

WETLAB Sample ID: 21030900-005

Receive Date: 3/30/2021 16:32

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.082	mg/L	1	0.020	3/31/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.14	mg/L	1	0.020	4/7/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	17	mg/L	1	10	3/31/2021	NV00925
Total Nitrogen	Calc.	0.82	mg/L	1	0.22	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	200	mg/L	1	25	3/31/2021	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.39	mg/L	1	0.020	4/6/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.43	mg/L	0.5	0.20	4/7/2021	NV00925

Customer Sample ID: YD @ SBC (1)

Collect Date/Time: 3/29/2021 12:00

WETLAB Sample ID: 21030900-006

Receive Date: 3/30/2021 16:32

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.049	mg/L	1	0.020	3/31/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.13	mg/L	1	0.020	4/7/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	39	mg/L	1	10	3/31/2021	NV00925
Total Nitrogen	Calc.	3.2	mg/L	1	0.24	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	330	mg/L	1	25	3/31/2021	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected &lt;RL or &lt;MDL (if listed)

Page 4 of 8

**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

**ELKO**

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: YD @ SBC (1)

Collect Date/Time: 3/29/2021 12:00

WETLAB Sample ID: 21030900-006

Receive Date: 3/30/2021 16:32

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	2.2	mg/L	2	0.040	4/6/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	1.0	mg/L	0.5	0.20	4/7/2021	NV00925

Customer Sample ID: SBC @ CWW (1)

Collect Date/Time: 3/29/2021 12:00

WETLAB Sample ID: 21030900-007

Receive Date: 3/30/2021 16:32

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.16	mg/L	1	0.020	3/31/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.23	mg/L	1	0.020	4/7/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	44	mg/L	1	10	3/31/2021	NV00925
Total Nitrogen	Calc.	1.1	mg/L	1	0.22	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	430	mg/L	1	25	3/31/2021	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.35	mg/L	1	0.020	4/6/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.78	mg/L	0.5	0.20	4/7/2021	NV00925

Customer Sample ID: SBC @ CWW (2)

Collect Date/Time: 3/29/2021 18:00

WETLAB Sample ID: 21030900-008

Receive Date: 3/30/2021 16:32

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.16	mg/L	1	0.020	3/31/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.18	mg/L	1	0.020	4/7/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	54	mg/L	1	10	3/31/2021	NV00925
Total Nitrogen	Calc.	1.1	mg/L	1	0.22	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	320	mg/L	1	25	3/31/2021	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.34	mg/L	1	0.020	4/6/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.78	mg/L	0.5	0.20	4/7/2021	NV00925

Customer Sample ID: SBC @ CWW (3)

Collect Date/Time: 3/30/2021 00:00

WETLAB Sample ID: 21030900-009

Receive Date: 3/30/2021 16:32

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.18	mg/L	1	0.020	3/31/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.18	mg/L	1	0.020	4/7/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	57	mg/L	1	10	3/31/2021	NV00925
Total Nitrogen	Calc.	1.0	mg/L	1	0.22	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	320	mg/L	1	25	3/31/2021	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.32	mg/L	1	0.020	4/6/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.68	mg/L	0.5	0.20	4/7/2021	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected &lt;RL or &lt;MDL (if listed)

Page 5 of 8

**SPARKS**

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
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1084 Lamoille Hwy  
 Elko, Nevada 89801  
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 fax (775) 777-9933  
 EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

Customer Sample ID: SBC @ CWW (3)

Collect Date/Time: 3/30/2021 00:00

WETLAB Sample ID: 21030900-009

Receive Date: 3/30/2021 16:32

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
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Customer Sample ID: SBC @ CWW (4)

Collect Date/Time: 3/30/2021 06:00

WETLAB Sample ID: 21030900-010

Receive Date: 3/30/2021 16:32

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
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**General Chemistry**

Orthophosphate, as P	SM 4500-P E	0.19	mg/L	1	0.020	3/31/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.19	mg/L	1	0.020	4/7/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	53	mg/L	1	10	3/31/2021	NV00925
Total Nitrogen	Calc.	1.0	mg/L	1	0.22	4/7/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	400	mg/L	1	25	3/31/2021	NV00925

**Flow Injection Analyses**

Nitrate + Nitrite Nitrogen	EPA 353.2	0.36	mg/L	1	0.020	4/6/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.66	mg/L	0.5	0.20	4/7/2021	NV00925

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 EPA LAB ID: NV00932



## Western Environmental Testing Laboratory QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21031036	Blank 1	Orthophosphate, as P	SM 4500-P E	ND			mg/L
QC21031041	Blank 1	Nitrate Nitrogen	EPA 300.0	ND			mg/L
		Nitrite Nitrogen	EPA 300.0	ND			mg/L
QC21031052	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC21031064	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC21040015	Blank 1	Total Suspended Solids (TSS)	SM 2540D	ND			mg/L
QC21040110	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC21040156	Blank 1	Nitrate + Nitrite Nitrogen	EPA 353.2	ND			mg/L
QC21040157	Blank 1	Nitrate + Nitrite Nitrogen	EPA 353.2	ND			mg/L
QC21040200	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC21040221	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21031036	LCS 1	Orthophosphate, as P	SM 4500-P E	0.247	0.250	99	mg/L
QC21031041	LCS 1	Nitrate Nitrogen	EPA 300.0	0.482	0.500	96	mg/L
		Nitrite Nitrogen	EPA 300.0	0.478	0.500	96	mg/L
QC21031052	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	140	150	93	mg/L
QC21031052	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	150	150	100	mg/L
QC21031064	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	140	150	93	mg/L
QC21031064	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	145	150	97	mg/L
QC21040015	LCS 1	Total Suspended Solids (TSS)	SM 2540D	196	200	98	mg/L
QC21040015	LCS 2	Total Suspended Solids (TSS)	SM 2540D	198	200	99	mg/L
QC21040110	LCS 1	Total Phosphorous as P	SM 4500-P E	0.224	0.250	90	mg/L
QC21040156	LCS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	0.965	1.00	97	mg/L
QC21040157	LCS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	0.952	1.00	95	mg/L
QC21040200	LCS 1	Total Phosphorous as P	SM 4500-P E	0.254	0.250	101	mg/L
QC21040221	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	1.04	1.00	104	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC21031052	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	21030817-001	1010	1006	mg/L	<1%
QC21031052	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	21030835-003	432	431	mg/L	<1%
QC21031064	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	21030848-002	798	740	mg/L	8 %
QC21031064	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	21030856-002	864	832	mg/L	4 %
QC21040015	Duplicate 1	Total Suspended Solids (TSS)	SM 2540D	21030825-002	ND	ND	mg/L	<1%
QC21040015	Duplicate 2	Total Suspended Solids (TSS)	SM 2540D	21030900-001	ND	ND	mg/L	<1%

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC21031036	MS 1	Orthophosphate, as P	SM 4500-P E	21030900-001	0.256	0.500	0.501	0.25	mg/L	98	98	<1
QC21031036	MS 2	Orthophosphate, as P	SM 4500-P E	21030900-005	0.082	0.332	0.333	0.25	mg/L	100	100	<1
QC21031041	MS 1	Nitrate Nitrogen	EPA 300.0	21030851-007	0.636	1.15	1.16	0.5	mg/L	104	105	<1
		Nitrite Nitrogen	EPA 300.0	21030851-007	ND	0.111	0.101	0.125	mg/L	89	81	9
QC21040110	MS 1	Total Phosphorous as P	SM 4500-P E	21030856-002	0.113	0.360	0.393	0.25	mg/L	99	112	9
QC21040110	MS 2	Total Phosphorous as P	SM 4500-P E	21030900-001	0.278	0.529	0.521	0.25	mg/L	101	97	2
QC21040156	MS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	21030879-001	ND	4.80	5.20	1	mg/L	96	104	8
QC21040156	MS 2	Nitrate + Nitrite Nitrogen	EPA 353.2	21030887-006	ND	M 2.34	3.22	1	mg/L	NC	NC	NC

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 7 of 8

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475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
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EPA LAB ID: NV00932

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC21040157	MS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	21030892-001	1.30	M 5.48	6.40	1	mg/L	NC	NC	NC
QC21040157	MS 2	Nitrate + Nitrite Nitrogen	EPA 353.2	21030910-002	1.28	6.38	6.39	1	mg/L	102	102	<1
QC21040200	MS 1	Total Phosphorous as P	SM 4500-PE	21030900-005	0.143	0.367	0.411	0.25	mg/L	90	107	11
QC21040200	MS 2	Total Phosphorous as P	SM 4500-PE	21030900-006	0.129	0.347	0.364	0.25	mg/L	87	94	5
QC21040221	MS 1	Total Kjeldahl Nitrogen	EPA 351.2	21030900-001	0.492	M 0.906	0.927	0.5	mg/L	NC	NC	NC
QC21040221	MS 2	Total Kjeldahl Nitrogen	EPA 351.2	21030851-001	1.58	2.05	2.13	0.5	mg/L	94	110	4

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 Elko, Nevada 89801  
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# WETLAB

WESTERN ENVIRONMENTAL TESTING LABORATORY

Specializing in Soil, Hazardous Waste and Water Analysis.

475 E. Greg Street #119 | Sparks, Nevada 89431 | www.WETLaboratory.com

tel (775) 355-0202 | fax (775) 355-0817

1084 Lamoille Highway | Elko, Nevada 89801

tel (775) 777-9933 | fax (775) 777-9933

3230 Polaris Ave., Suite 4 | Las Vegas, Nevada 89102

tel (702) 475-8899 | fax (702) 776-6152

WETLAB Order ID. 21030900

Sparks \_\_\_\_\_

Elko \_\_\_\_\_

LV \_\_\_\_\_

Report \_\_\_\_\_

Due Date \_\_\_\_\_

Page 1 of 2

Client Balance Hydrologics

Address \_\_\_\_\_

City, State & Zip ON File

Contact \_\_\_\_\_

Phone \_\_\_\_\_ Collector's Name \_\_\_\_\_

Fax \_\_\_\_\_ Project 213136

P.O. Number \_\_\_\_\_ PWS Number \_\_\_\_\_

**Turnaround Time Requirements**

Standard X

5 Day\* (25%) \_\_\_\_\_ 72 Hour\* (50%) \_\_\_\_\_

48 Hour\* (100%) \_\_\_\_\_ 24 Hour\* (200%) \_\_\_\_\_

\*Surcharges Will Apply

**Samples Collected From Which State?**

NV X CA \_\_\_\_\_

Other \_\_\_\_\_

**Compliance Monitoring?**

Yes \_\_\_\_\_ No (X)

**Report to Regulatory Agency?**

Yes \_\_\_\_\_ No (X)

**Report Results Via**

PDF (X) EDD \_\_\_\_\_

Other Excel

**Standard QC Required?**

Yes \_\_\_\_\_ No (X)

Email lvrnstman@balancehydro.com

**Billing Address (if different than Client Address)**

Company \_\_\_\_\_

Address \_\_\_\_\_

City, State & Zip \_\_\_\_\_

Contact \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_

S A M P L E T Y P E S	NO. OF C O N T A I N E R S	Analyses Requested										Spl. No.	
		Total N	Total P	Ortho P	TDS	TSS	NO <sub>3</sub>						
	Ag-2	X	X	X	X	X	X						
	2	X	X	X	X	X							
	2	X	X	X	X	X							
	2	X	X	X	X	X							
	2	X	X	X	X	X						2103	2
	2	X	X	X	X	X						0900	10
	2	X	X	X	X	X							
	2	X	X	X	X	X							

SAMPLE ID/LOCATION	DATE	TIME	PRES TYPE
<u>CC@CB</u>	<u>3/30/21</u>	<u>12:35</u>	
<u>BS@SBC (1)</u>	<u>3/29/21</u>	<u>12:00</u>	
<u>BS@SBC (2)</u>	<u>3/29/21</u>	<u>18:00</u>	
<u>BS@SBC (3)</u>	<u>3/30/21</u>	<u>0:00</u>	
<u>BS@SBC (4)</u>	<u>3/30/21</u>	<u>06:00</u>	
<u>YD@SBC (1)</u>	<u>3/29/21</u>	<u>12:00</u>	
<u>SBC@CWW (1)</u>	<u>3/29/21</u>	<u>12:00</u>	
<u>SBC@CWW (2)</u>	<u>3/29/21</u>	<u>18:00</u>	
<u>SBC@CWW (3)</u>	<u>3/30/21</u>	<u>0:00</u>	

Instructions/Comments/Special Requirements:

Sample Matrix Key\*\* DW = Drinking Water WW = Wastewater SW = Surface Water MW = Monitoring Well SD = Solid/Sludge SO = Soil HW = Hazardous Waste OTHER: \_\_\_\_\_

\*SAMPLE PRESERVATIVES: 1=Unpreserved 2=H2SO4 3=NaOH 4=HCl 5=HNO3 6=Na2S2O3 7=ZnOAc+NaOH 8=NH4Cl 9=H3PO4

Temp	On Ice	Custody Seal	DATE	TIME	Samples Relinquished By	Samples Received By
<u>11.3°C</u>	<u>(Y) / N</u>	<u>Y / (N)</u>	<u>3-30-21</u>	<u>11032</u>	<u>[Signature]</u>	<u>[Signature]</u>
°C	Y / N	Y / N				
°C	Y / N	Y / N				
°C	Y / N	Y / N				

WETLAB'S Standard Terms and Conditions apply unless written agreements specify otherwise. Payment terms are Net 30.

Client/Collector attests to the validity and authenticity of this (these) sample(s) and, is (are) aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636). [Signature] initial

To the maximum extent permitted by law, the Client agrees to limit the liability of WETLAB for the Client's damages to the total compensation received, unless other agreements are made in writing. This limitation shall apply regardless of the cause of action or legal theory pled or asserted. [Signature] initial

WETLAB will dispose of samples 90 days from sample receipt. Client may request a longer sample storage time for an additional fee. 301.2E

Please contact your Project Manager for details. [Signature] initial



5/27/2021

Balance Hydrologics  
800 Baucroft Ave. Suite 101  
Berkeley, CA 94710  
Attn: Ben Trustman

OrderID: 21050512

Dear: Ben Trustman

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

The samples were received by WETLAB-Western Environmental Testing Laboratory in good condition on 5/17/2021. Additional comments are located on page 2 of this report.

If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,



Cory Baker  
QA Specialist



Mckenna Oh  
Project Manager

MckennaO@wetlaboratory.com  
(775) 200-9876

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Sparks, Nevada 89431  
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# Western Environmental Testing Laboratory

## Report Comments

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Balance Hydrologics - 21050512

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### Specific Report Comments

#### Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
- D -- Due to the sample matrix dilution was required in order to properly detect and report the analyte. The reporting limit has been adjusted accordingly.
- HT -- Sample analyzed beyond the accepted holding time
- J -- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit. The reported result should be considered an estimate.
- K -- The TPH Diesel Concentration reported here likely includes some heavier TPH Oil hydrocarbons reported in the TPH Diesel range as per EPA 8015.
- L -- The TPH Oil Concentration reported here likely includes some lighter TPH Diesel hydrocarbons reported in the TPH Oil range as per EPA 8015.
- M -- The matrix spike/matrix spike duplicate (MS/MSD) values for the analysis of this parameter were outside acceptance criteria due to probable matrix interference. The reported result should be considered an estimate.
- N -- There was insufficient sample available to perform a spike and/or duplicate on this analytical batch.
- NC -- Not calculated due to matrix interference
- QD -- The sample duplicate or matrix spike duplicate analysis demonstrated sample imprecision. The reported result should be considered an estimate.
- QL -- The result for the laboratory control sample (LCS) was outside WETLAB acceptance criteria and reanalysis was not possible. The reported data should be considered an estimate.
- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
- SC -- Spike recovery not calculated. Sample concentration >4X the spike amount; therefore, the spike could not be adequately recovered
- U -- The analyte was analyzed for, but was not detected above the level of the reported sample reporting/quantitation limit. The reported result should be considered an estimate.

#### General Lab Comments

Per method recommendation (section 4.4), Samples analyzed by methods EPA 300.0 and EPA 300.1 have been filtered prior to analysis.

The following is an interpretation of the results from EPA method 9223B:

A result of zero (0) indicates absence for both coliform and Escherichia coli meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

Per federal regulation the holding time for the following parameters in aqueous/water samples is 15 minutes: Residual Chlorine, pH, Dissolved Oxygen, Sulfite.

---

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EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Analytical Report

**Balance Hydrologics**  
**800 Baucroft Ave. Suite 101**  
**Berkeley, CA 94710**

**Attn:** Ben Trustman

**Phone:** (510-704-1000) **Fax:** NoFax

**Date Printed:** 5/27/2021

**OrderID:** 21050512

**Customer Sample ID:** NTD@ORD

**Collect Date/Time:** 5/15/2021 14:20

**WETLAB Sample ID:** 21050512-001

**Receive Date:** 5/17/2021 09:25

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.29	mg/L	1	0.020	5/17/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.48	mg/L	1	0.020	5/20/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	100	mg/L	1	10	5/18/2021	NV00925
Total Nitrogen	Calc.	6.3	mg/L	1	0.22	5/21/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	780	mg/L	1	25	5/18/2021	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	1.3	mg/L	1	0.020	5/21/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	5.0	mg/L	0.5	0.20	5/21/2021	NV00925

**Customer Sample ID:** EC@KL

**Collect Date/Time:** 5/15/2021 15:30

**WETLAB Sample ID:** 21050512-002

**Receive Date:** 5/17/2021 09:25

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.095	mg/L	1	0.020	5/17/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.17	mg/L	1	0.020	5/20/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	12	mg/L	1	10	5/18/2021	NV00925
Total Nitrogen	Calc.	2.4	mg/L	1	0.25	5/21/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	110	mg/L	1	25	5/18/2021	NV00925
<b>Anions by Ion Chromatography</b>							
Nitrate Nitrogen	EPA 300.0	0.14	mg/L	1	0.030	5/17/2021	NV00925
Nitrite Nitrogen	EPA 300.0	ND	mg/L	1	0.020	5/17/2021	NV00925
<b>Flow Injection Analyses</b>							
Total Kjeldahl Nitrogen	EPA 351.2	2.3	mg/L	0.5	0.20	5/21/2021	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 3 of 4

### SPARKS

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
 tel (775) 355-0202  
 fax (775) 355-0817  
 EPA LAB ID: NV00925 - ELAP No: 2523

### ELKO

1084 Lamoille Hwy  
 Elko, Nevada 89801  
 tel (775) 777-9933  
 fax (775) 777-9933  
 EPA LAB ID: NV00926

### LAS VEGAS

3230 Polaris Ave. Suite 4  
 Las Vegas, Nevada 89102  
 tel (702) 475-8899  
 fax (702) 622-2868  
 EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21050575	Blank 1	Orthophosphate, as P	SM 4500-P E	ND			mg/L
QC21050597	Blank 1	Nitrate Nitrogen	EPA 300.0	ND			mg/L
		Nitrite Nitrogen	EPA 300.0	ND			mg/L
QC21050604	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC21050694	Blank 1	Total Suspended Solids (TSS)	SM 2540D	ND			mg/L
QC21050746	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC21050775	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L
QC21050793	Blank 1	Nitrate + Nitrite Nitrogen	EPA 353.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21050575	LCS 1	Orthophosphate, as P	SM 4500-P E	0.275	0.250	110	mg/L
QC21050597	LCS 1	Nitrate Nitrogen	EPA 300.0	0.476	0.500	95	mg/L
		Nitrite Nitrogen	EPA 300.0	0.462	0.500	92	mg/L
QC21050604	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	149	150	99	mg/L
QC21050604	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	156	150	104	mg/L
QC21050694	LCS 1	Total Suspended Solids (TSS)	SM 2540D	199	200	100	mg/L
QC21050694	LCS 2	Total Suspended Solids (TSS)	SM 2540D	200	200	100	mg/L
QC21050746	LCS 1	Total Phosphorous as P	SM 4500-P E	0.265	0.250	106	mg/L
QC21050775	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	0.959	1.00	96	mg/L
QC21050793	LCS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	1.01	1.00	101	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC21050604	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	21050500-001	758	784	mg/L	3 %
QC21050604	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	21050513-002	484	509	mg/L	5 %
QC21050694	Duplicate 1	Total Suspended Solids (TSS)	SM 2540D	21050482-002	ND	ND	mg/L	<1%
QC21050694	Duplicate 2	Total Suspended Solids (TSS)	SM 2540D	21050501-002	ND	ND	mg/L	<1%

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC21050575	MS 1	Orthophosphate, as P	SM 4500-P E	21050512-001	0.288	0.518	0.528	0.25	mg/L	92	96	2
QC21050597	MS 1	Nitrate Nitrogen	EPA 300.0	21050512-002	0.142	0.668	0.666	0.5	mg/L	105	105	<1
		Nitrite Nitrogen	EPA 300.0	21050512-002	ND	0.125	0.124	0.125	mg/L	100	100	<1
QC21050746	MS 1	Total Phosphorous as P	SM 4500-P E	21050482-002	0.118	0.383	0.390	0.25	mg/L	106	109	2
QC21050746	MS 2	Total Phosphorous as P	SM 4500-P E	21050513-005	0.088	0.320	0.329	0.25	mg/L	92	96	3
QC21050775	MS 1	Total Kjeldahl Nitrogen	EPA 351.2	21050302-001	ND	QD 0.678	0.979	0.5	mg/L	106	167	36
QC21050775	MS 2	Total Kjeldahl Nitrogen	EPA 351.2	21050525-003	0.344	M 0.870	0.832	0.5	mg/L	NC	NC	NC
QC21050793	MS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	21050495-001	0.375	5.46	5.49	1	mg/L	102	102	<1
QC21050793	MS 2	Nitrate + Nitrite Nitrogen	EPA 353.2	21050500-002	0.740	5.81	5.72	1	mg/L	101	100	2

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 4 of 4

### SPARKS

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
fax (775) 355-0817  
EPA LAB ID: NV00925 - ELAP No: 2523

### ELKO

1084 Lamoille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
EPA LAB ID: NV00926

### LAS VEGAS

3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932





6/18/2021

Balance Hydrologics  
800 Baucroft Ave. Suite 101  
Berkeley, CA 94710  
Attn: Ben Trustman

OrderID: 21060147

Dear: Ben Trustman

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

The samples were received by WETLAB-Western Environmental Testing Laboratory in good condition on 6/4/2021. Additional comments are located on page 2 of this report.

If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,



Cory Baker  
QA Specialist



Mckenna Oh  
Project Manager

MckennaO@wetlaboratory.com  
(775) 200-9876

**SPARKS**

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
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**ELKO**

1084 Lamaille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Report Comments

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Balance Hydrologics - 21060147

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### Specific Report Comments

None

### Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
- D -- Due to the sample matrix dilution was required in order to properly detect and report the analyte. The reporting limit has been adjusted accordingly.
- HT -- Sample analyzed beyond the accepted holding time
- J -- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit. The reported result should be considered an estimate.
- K -- The TPH Diesel Concentration reported here likely includes some heavier TPH Oil hydrocarbons reported in the TPH Diesel range as per EPA 8015.
- L -- The TPH Oil Concentration reported here likely includes some lighter TPH Diesel hydrocarbons reported in the TPH Oil range as per EPA 8015.
- M -- The matrix spike/matrix spike duplicate (MS/MSD) values for the analysis of this parameter were outside acceptance criteria due to probable matrix interference. The reported result should be considered an estimate.
- N -- There was insufficient sample available to perform a spike and/or duplicate on this analytical batch.
- NC -- Not calculated due to matrix interference
- QD -- The sample duplicate or matrix spike duplicate analysis demonstrated sample imprecision. The reported result should be considered an estimate.
- QL -- The result for the laboratory control sample (LCS) was outside WETLAB acceptance criteria and reanalysis was not possible. The reported data should be considered an estimate.
- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
- SC -- Spike recovery not calculated. Sample concentration >4X the spike amount; therefore, the spike could not be adequately recovered
- U -- The analyte was analyzed for, but was not detected above the level of the reported sample reporting/quantitation limit. The reported result should be considered an estimate.

### General Lab Comments

Per method recommendation (section 4.4), Samples analyzed by methods EPA 300.0 and EPA 300.1 have been filtered prior to analysis.

The following is an interpretation of the results from EPA method 9223B:

A result of zero (0) indicates absence for both coliform and Escherichia coli meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

Per federal regulation the holding time for the following parameters in aqueous/water samples is 15 minutes: Residual Chlorine, pH, Dissolved Oxygen, Sulfite.

---

#### **SPARKS**

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
fax (775) 355-0817  
EPA LAB ID: NV00925 - ELAP No: 2523

#### **ELKO**

1084 Lamaille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
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EPA LAB ID: NV00926

#### **LAS VEGAS**

3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Analytical Report

**Balance Hydrologics**  
**800 Baucroft Ave. Suite 101**  
**Berkeley, CA 94710**

**Attn:** Ben Trustman

**Phone:** (510-704-1000) **Fax:** NoFax

**Date Printed:** 6/18/2021

**OrderID:** 21060147

**Customer Sample ID:** NTD @ BFD (1)

**Collect Date/Time:** 6/3/2021 17:56

**WETLAB Sample ID:** 21060147-001

**Receive Date:** 6/4/2021 09:16

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.13	mg/L	1	0.020	6/4/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.57	mg/L	1	0.020	6/14/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	470	mg/L	1	10	6/8/2021	NV00925
Total Nitrogen	Calc.	7.2	mg/L	1	0.42	6/16/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	300	mg/L	1	25	6/4/2021	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	1.1	M mg/L	1	0.020	6/16/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	6.2	mg/L	1	0.40	6/11/2021	NV00925

### SPARKS

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 Sparks, Nevada 89431  
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 Elko, Nevada 89801  
 tel (775) 777-9933  
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 EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21060218	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC21060224	Blank 1	Orthophosphate, as P	SM 4500-P E	ND			mg/L
QC21060354	Blank 1	Total Suspended Solids (TSS)	SM 2540D	ND			mg/L
QC21060504	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L
QC21060556	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC21060691	Blank 1	Nitrate + Nitrite Nitrogen	EPA 353.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21060218	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	150	150	100	mg/L
QC21060218	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	147	150	98	mg/L
QC21060224	LCS 1	Orthophosphate, as P	SM 4500-P E	0.274	0.250	110	mg/L
QC21060354	LCS 1	Total Suspended Solids (TSS)	SM 2540D	197	200	99	mg/L
QC21060354	LCS 2	Total Suspended Solids (TSS)	SM 2540D	197	200	99	mg/L
QC21060504	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	1.02	1.00	102	mg/L
QC21060556	LCS 1	Total Phosphorous as P	SM 4500-P E	0.277	0.250	111	mg/L
QC21060691	LCS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	0.988	1.00	99	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC21060218	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	21060113-009	1216	1252	mg/L	3 %
QC21060218	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	21060139-007	514	506	mg/L	2 %
QC21060354	Duplicate 1	Total Suspended Solids (TSS)	SM 2540D	21060139-006	ND	ND	mg/L	<1%
QC21060354	Duplicate 2	Total Suspended Solids (TSS)	SM 2540D	21060152-001	12.0	11.7	mg/L	3 %

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC21060224	MS 1	Orthophosphate, as P	SM 4500-P E	21060147-001	0.126	0.363	0.368	0.25	mg/L	95	97	1
QC21060504	MS 1	Total Kjeldahl Nitrogen	EPA 351.2	21060055-001	0.106	J 0.644	0.654	0.5	mg/L	108	110	2
QC21060504	MS 2	Total Kjeldahl Nitrogen	EPA 351.2	21060163-003	1.17	M 1.87	1.77	0.5	mg/L	NC	NC	NC
QC21060556	MS 1	Total Phosphorous as P	SM 4500-P E	21060086-002	0.126	0.360	0.386	0.25	mg/L	93	104	7
QC21060556	MS 2	Total Phosphorous as P	SM 4500-P E	21060340-002	0.080	M 0.450	0.417	0.25	mg/L	NC	NC	NC
QC21060691	MS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	21060147-001	1.06	M 1.89	1.82	1	mg/L	NC	NC	NC
QC21060691	MS 2	Nitrate + Nitrite Nitrogen	EPA 353.2	21060195-003	ND	4.93	5.02	1	mg/L	98	100	2

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 4 of 4

### SPARKS

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
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EPA LAB ID: NV00925 - ELAP No: 2523

### ELKO

1084 Lamoille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
EPA LAB ID: NV00926

### LAS VEGAS

3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932



7/9/2021

Balance Hydrologics  
800 Baucroft Ave. Suite 101  
Berkeley, CA 94710  
Attn: Ben Trustman

OrderID: 21060867

Dear: Ben Trustman

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

The samples were received by WETLAB-Western Environmental Testing Laboratory in good condition on 6/25/2021. Additional comments are located on page 2 of this report.

If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,



Cory Baker  
QA Specialist



Mckenna Oh  
Project Manager

MckennaO@wetlaboratory.com  
(775) 200-9876

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Sparks, Nevada 89431  
tel (775) 355-0202  
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**ELKO**

1084 Lamaille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
EPA LAB ID: NV00926

**LAS VEGAS**

3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## Report Comments

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Balance Hydrologics - 21060867

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### Specific Report Comments

None

### Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
- D -- Due to the sample matrix dilution was required in order to properly detect and report the analyte. The reporting limit has been adjusted accordingly.
- HT -- Sample analyzed beyond the accepted holding time
- J -- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit. The reported result should be considered an estimate.
- K -- The TPH Diesel Concentration reported here likely includes some heavier TPH Oil hydrocarbons reported in the TPH Diesel range as per EPA 8015.
- L -- The TPH Oil Concentration reported here likely includes some lighter TPH Diesel hydrocarbons reported in the TPH Oil range as per EPA 8015.
- M -- The matrix spike/matrix spike duplicate (MS/MSD) values for the analysis of this parameter were outside acceptance criteria due to probable matrix interference. The reported result should be considered an estimate.
- N -- There was insufficient sample available to perform a spike and/or duplicate on this analytical batch.
- NC -- Not calculated due to matrix interference
- QD -- The sample duplicate or matrix spike duplicate analysis demonstrated sample imprecision. The reported result should be considered an estimate.
- QL -- The result for the laboratory control sample (LCS) was outside WETLAB acceptance criteria and reanalysis was not possible. The reported data should be considered an estimate.
- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
- SC -- Spike recovery not calculated. Sample concentration >4X the spike amount; therefore, the spike could not be adequately recovered
- U -- The analyte was analyzed for, but was not detected above the level of the reported sample reporting/quantitation limit. The reported result should be considered an estimate.

### General Lab Comments

Per method recommendation (section 4.4), Samples analyzed by methods EPA 300.0 and EPA 300.1 have been filtered prior to analysis.

The following is an interpretation of the results from EPA method 9223B:

A result of zero (0) indicates absence for both coliform and Escherichia coli meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

Per federal regulation the holding time for the following parameters in aqueous/water samples is 15 minutes: Residual Chlorine, pH, Dissolved Oxygen, Sulfite.

---

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475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
fax (775) 355-0817  
EPA LAB ID: NV00925 - ELAP No: 2523

#### **ELKO**

1084 Lamaille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
EPA LAB ID: NV00926

#### **LAS VEGAS**

3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932



# Western Environmental Testing Laboratory

## Analytical Report

**Balance Hydrologics**  
**800 Baucroft Ave. Suite 101**  
**Berkeley, CA 94710**

**Attn:** Ben Trustman

**Phone:** (510-704-1000) **Fax:** NoFax

**Date Printed:** 7/9/2021

**OrderID:** 21060867

**Customer Sample ID:** NTD @ BFD (2)

**Collect Date/Time:** 6/24/2021 20:35

**WETLAB Sample ID:** 21060867-001

**Receive Date:** 6/25/2021 09:17

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
<b>General Chemistry</b>							
Orthophosphate, as P	SM 4500-P E	0.17	mg/L	1	0.020	6/25/2021	NV00925
Total Phosphorous as P	SM 4500-P E	0.21	mg/L	1	0.020	6/28/2021	NV00925
Total Suspended Solids (TSS)	SM 2540D	170	mg/L	1	10	6/29/2021	NV00925
Total Nitrogen	Calc.	4.9	mg/L	1	0.22	7/2/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	210	mg/L	1	25	6/29/2021	NV00925
<b>Flow Injection Analyses</b>							
Nitrate + Nitrite Nitrogen	EPA 353.2	0.58	mg/L	1	0.020	7/2/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	4.3	mg/L	0.5	0.20	7/1/2021	NV00925

### SPARKS

475 E. Greg Street, Suite 119  
 Sparks, Nevada 89431  
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 Elko, Nevada 89801  
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 EPA LAB ID: NV00932

# Western Environmental Testing Laboratory

## QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21061115	Blank 1	Orthophosphate, as P	SM 4500-P E	ND			mg/L
QC21061166	Blank 1	Total Phosphorous as P	SM 4500-P E	ND			mg/L
QC21061184	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC21061252	Blank 1	Total Suspended Solids (TSS)	SM 2540D	ND			mg/L
QC21070045	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L
QC21070093	Blank 1	Nitrate + Nitrite Nitrogen	EPA 353.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21061115	LCS 1	Orthophosphate, as P	SM 4500-P E	0.277	0.250	111	mg/L
QC21061166	LCS 1	Total Phosphorous as P	SM 4500-P E	0.266	0.250	107	mg/L
QC21061184	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	144	150	96	mg/L
QC21061184	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	154	150	103	mg/L
QC21061252	LCS 1	Total Suspended Solids (TSS)	SM 2540D	202	200	101	mg/L
QC21061252	LCS 2	Total Suspended Solids (TSS)	SM 2540D	199	200	100	mg/L
QC21070045	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	1.01	1.00	101	mg/L
QC21070093	LCS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	1.02	1.00	102	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC21061184	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	21060839-001	2532	2540	mg/L	<1%
QC21061184	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	21060861-002	366	364	mg/L	<1%
QC21061252	Duplicate 1	Total Suspended Solids (TSS)	SM 2540D	21060839-005	ND	ND	mg/L	<1%
QC21061252	Duplicate 2	Total Suspended Solids (TSS)	SM 2540D	21060861-001	24.0	23.0	mg/L	4 %

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC21061115	MS 1	Orthophosphate, as P	SM 4500-P E	21060867-001	0.166	0.404	0.413	0.25	mg/L	96	99	2
QC21061166	MS 1	Total Phosphorous as P	SM 4500-P E	21060771-002	0.138	0.383	0.385	0.25	mg/L	98	99	<1
QC21061166	MS 2	Total Phosphorous as P	SM 4500-P E	21060878-001	0.026	QD 0.242	0.302	0.25	mg/L	87	110	22
QC21070045	MS 1	Total Kjeldahl Nitrogen	EPA 351.2	21060763-001	0.256	0.763	0.727	0.5	mg/L	101	94	5
QC21070045	MS 2	Total Kjeldahl Nitrogen	EPA 351.2	21060878-001	ND	0.606	0.578	0.5	mg/L	103	98	5
QC21070093	MS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	21060665-001	ND	5.13	5.07	1	mg/L	102	101	1
QC21070093	MS 2	Nitrate + Nitrite Nitrogen	EPA 353.2	21060906-001	ND	5.11	5.16	1	mg/L	101	101	1

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 4 of 4

### SPARKS

475 E. Greg Street, Suite 119  
Sparks, Nevada 89431  
tel (775) 355-0202  
fax (775) 355-0817  
EPA LAB ID: NV00925 - ELAP No: 2523

### ELKO

1084 Lamoille Hwy  
Elko, Nevada 89801  
tel (775) 777-9933  
fax (775) 777-9933  
EPA LAB ID: NV00926

### LAS VEGAS

3230 Polaris Ave. Suite 4  
Las Vegas, Nevada 89102  
tel (702) 475-8899  
fax (702) 622-2868  
EPA LAB ID: NV00932



# WETLAB

WESTERN ENVIRONMENTAL TESTING LABORATORY

Specializing in Soil, Hazardous Waste and Water Analysis.

475 E. Greg Street #119 | Sparks, Nevada 89431 | www.WETLaboratory.com

tel (775) 355-0202 | fax (775) 355-0817

1084 Lamoille Highway | Elko, Nevada 89801

tel (775) 777-9933 | fax (775) 777-9933

3230 Polaris Ave., Suite 4 | Las Vegas, Nevada 89102

tel (702) 475-8899 | fax (702) 776-6152

WETLAB Order ID. 21060867

Sparks \_\_\_\_\_

Elko \_\_\_\_\_

LV \_\_\_\_\_

Report \_\_\_\_\_

Due Date \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_

Client Balance Hydrologics

Address \_\_\_\_\_

City, State & Zip \_\_\_\_\_

Contact Ben Trustman

Phone \_\_\_\_\_ Collector's Name Jack Jaquet

Fax \_\_\_\_\_ Project \_\_\_\_\_

P.O. Number \_\_\_\_\_ PWS Number \_\_\_\_\_

Email \_\_\_\_\_

**Billing Address (if different than Client Address)**

Company \_\_\_\_\_

Address \_\_\_\_\_

City, State & Zip \_\_\_\_\_

Contact \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_

NO. OF CONTAINERS

SAMPLE TYPES

Analyses Requested

Total Nitrogen

Total Phosphorus

Ortho Phosphorus

TSS

TDS

Spl. No.

SAMPLE ID/LOCATION DATE TIME PRES TYPE \* \*\*

NTD @ BFD (2) 6/24 20:35 X X X X X

Instructions/Comments/Special Requirements:

Sample Matrix Key\*\* DW = Drinking Water WW = Wastewater SW = Surface Water MW = Monitoring Well SD = Solid/Sludge SO = Soil HW = Hazardous Waste OTHER: \_\_\_\_\_

\*SAMPLE PRESERVATIVES: 1=Unpreserved 2=H2SO4 3=NaOH 4=HCl 5=HNO3 6=Na2S2O3 7=ZnOAc+NaOH 8=NH4Cl 9=H3PO4

Temp On Ice Custody Seal DATE TIME Samples Relinquished By Samples Received By

11.3°C Y/N Y/N 6/25 9/7

°C Y/N Y/N

°C Y/N Y/N

°C Y/N Y/N

WETLAB'S Standard Terms and Conditions apply unless written agreements specify otherwise. Payment terms are Net 30.

Client/Collector attests to the validity and authenticity of this (these) sample(s) and, is (are) aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636). \_\_\_\_\_ initial  
To the maximum extent permitted by law, the Client agrees to limit the liability of WETLAB for the Client's damages to the total compensation received, unless other agreements are made in writing. This limitation shall apply regardless of the cause of action or legal theory pled or asserted. \_\_\_\_\_ initial  
WETLAB will dispose of samples 90 days from sample receipt. Client may request a longer sample storage time for an additional fee. 301.2E  
Please contact your Project Manager for details. \_\_\_\_\_ initial

## **APPENDIX E**

### **Nevada Water Quality Standards**

**STANDARDS OF WATER QUALITY**  
Truckee River at Idlewild

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use <sup>a</sup>											
			Livestock	Irrigation	Aquatic	Contact	Noncontact <sup>t</sup>	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh	
Beneficial Uses			X	X	X	X	X	X	X	X	X			
Aquatic Life Species of Concern			All life stages of mountain whitefish, rainbow trout and brown trout											
Temperature - °C		S.V. Nov-Mar ≤ 7 S.V. Apr ≤ 13 S.V. May ≤ 17 S.V. Jun ≤ 21 S.V. Jul ≤ 22 S.V. Aug ≤ 23 S.V. Sep- Oct ΔT ≤ 2			*									
ΔT <sup>b</sup> - °C	ΔT= 0													
pH - SU	S.V. 7.2 - 8.3	S.V. 6.5 - 9.0 ΔpH ± 0.5			*									
Dissolved Oxygen - mg/l		S.V. Nov-Mar ≤ 6.0 S.V. Apr-Oct ≤ 5.0			*									
Total Phosphates (as P) - mg/l	A-Avg. ≤ 0.05	A-Avg. ≤ 0.10			*	*								
Ortho Phosphates (as P) - mg/l	S.V. ≤ 0.02	S.V. ≤ 0.05			*	*								
Nitrogen Species (as N) - mg/l	Total N A-Avg. ≤ 0.3 Total N S.V. ≤ 0.43	Nitrate S.V. ≤ 2.0 Nitrite S.V. ≤ 0.04			*	*								
Total Ammonia (as N) - mg/l		c			*									
Suspended Solids - mg/l	A-Avg. ≤ 15.0	S.V. ≤ 25			*									
Turbidity - NTU	A-Avg. ≤ 8.0 S.V. ≤ 9.0	S.V. ≤ 10			*									
Color - PCU	d	S.V. ≤ 75							*					
Total Dissolved Solids - mg/l	A-Avg. ≤ 80.0 S.V. ≤ 95.0	A-Avg. ≤ 500							*					
Chloride - mg/l	A-Avg. ≤ 7.0 S.V. ≤ 10.0	S.V. ≤ 250							*					
Sulfate - mg/l	A-Avg. ≤ 7.0 S.V. ≤ 8.0	S.V. ≤ 250							*					
Sodium - SAR	A-Avg. ≤ 0.5 S.V. ≤ 0.6	A-Avg. ≤ 8		*										
Alkalinity (as CaCO <sub>3</sub> ) - mg/l		S.V. ≥ 20			*									
E. coli - cfu/100 ml <sup>e</sup>		G.M. ≤ 126 S.V. ≤ 410				*								
Fecal Coliform - No./100 ml	A.G.M. ≤ 50.0 S.V. ≤ 200.0	S.V. ≤ 1000		*										
BOD- mg/l		A-Avg. ≤ 2.5 S.V. ≤ 3.0		*										
Toxic Materials		f		*										

\* = The most restrictive beneficial use.

a Refer to NAC 445A.122 and 445A.1622 for beneficial use terminology.

b Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the single value standard.

c The ambient water quality criteria for ammonia are specified in NAC 445A.118.

d Increase in color must not be more than 10 PCU above natural conditions.

e The geometric mean must not be exceeded in any 30-day period. The single value must not be exceeded in more than 10 percent of the samples collected within any 30-day period.

f The water quality criteria for toxic materials are specified in NAC 445A.1236.

A.G.M annual geometric mean

A-AVG means annual average

ΔT change in temperature

NTU nephelometric turbidity units, a measure of turbidity

PCU platinum cobalt unit, a measure of color

S.V. single value

STANDARDS OF WATER QUALITY  
Truckee River at East McCarran

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use <sup>a</sup>														
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh				
Beneficial Uses			X	X	X	X	X	X	X	X	X						
Aquatic Life Species of Concern			All life stages of mountain whitefish, rainbow trout and brown trout														
Temperature - °C		S.V. Nov-Mar ≤ 7 S.V. Apr ≤ 13 S.V. May ≤ 17 S.V. Jun ≤ 21 S.V. Jul ≤ 22 S.V. Aug ≤ 23 S.V. Sep-Oct ΔT ≤ 2			*												
ΔT <sup>b</sup> - °C	ΔT= 0																
pH - SU	S.V. 7.0 - 8.5	S.V. 6.5 - 9.0 ΔpH ± 0.5			*												
Dissolved Oxygen - mg/l		S.V. Nov-Mar ≤ 6.0 S.V. Apr-Oct ≤ 5.0			*												
Total Phosphates (as P) - mg/l	A-Avg. ≤ 0.05	A-Avg. ≤ 0.10			*	*											
Ortho Phosphates (as P) - mg/l	S.V. ≤ 0.02	S.V. ≤ 0.05			*	*											
Nitrogen Species (as N) - mg/l	Total N A-Avg. ≤ 0.3 Total N S.V. ≤ 0.43	Nitrate S.V. ≤ 2.0 Nitrite S.V. ≤ 0.04			*	*											
Total Ammonia (as N) - mg/l		c			*												
Suspended Solids - mg/l	A-Avg. ≤ 15.0	S.V. ≤ 250			*												
Turbidity - NTU	A-Avg. ≤ 6.0	S.V. ≤ 10			*												
Color - PCU	d	S.V. ≤ 75								*							
Total Dissolved Solids - mg/l	A-Avg. ≤ 90.0 S.V. ≤ 120.0	A-Avg. ≤ 500								*							
Chloride - mg/l	A-Avg. ≤ 7.0 S.V. ≤ 10.0	S.V. ≤ 250								*							
Sulfate - mg/l	A-Avg. ≤ 7.0 S.V. ≤ 8.0	S.V. ≤ 250								*							
Sodium - SAR	A-Avg. ≤ 0.5 S.V. ≤ 0.6	A-Avg. ≤ 8		*													
Alkalinity (as CaCO <sub>3</sub> ) - mg/l		S.V. ≥ 20			*												
E. coli - cfu/100 ml <sup>e</sup>		G.M. ≤ 126 S.V. ≤ 410				*											
Fecal Coliform - No./100 ml	A.G.M. ≤ 75.0 S.V. ≤ 350.0	S.V. ≤ 1000		*													
BOD- mg/l		A.G.M. ≤ 3.0 S.V. ≤ 5.0		*													
Toxic Materials		f															

\* = The most restrictive beneficial use.

X = Beneficial use.

a Refer to NAC 445A.122 and 445A.1622 for beneficial use terminology.

b Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the single value standard.

c The ambient water quality criteria for ammonia are specified in NAC 445A.118.

d Increase in color must not be more than 10 PCU above natural conditions.

e The geometric mean must not be exceeded in any 30-day period. The single value must not be exceeded in more than 10 percent of the samples collected within any 30-day period.

f The water quality criteria for toxic materials are specified in NAC 445A.1236.

A.G.M the annual geometric mean

A-AVG annual average

ΔT change in temperature

NTU nephelometric turbidity units, a measure of turbidity

PCU platimun cobalt unit, a measure of color

S.V. single value

**STANDARDS OF WATER QUALITY**  
**Truckee River at Lockwood Bridge**

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use <sup>a</sup>														
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh				
Beneficial Uses			X	X	X	X	X	X	X	X	X						
Aquatic Life Species of Concern			Juvenile and adult rainbow trout and brown trout.														
Temperature - °C		S.V. Nov-Mar ≤ 13 S.V. Apr ≤ 21c S.V. May ≤ 22c,d S.V. Jun-Oct ≤ 23c,d			*												
ΔT <sup>b</sup> - °C	ΔT= 0	ΔT ≤ 2															
pH - SU	S.V. 7.1 - 8.5	S.V. 6.5 - 9.0 ΔpH ± 0.5			*												
Dissolved Oxygen - mg/l		S.V. Nov-Mar ≤ 6.0 S.V. Apr-Oct ≤ 5.0			*												
Total Phosphates (as P) - mg/l		A-Avg. ≤ 0.05			*	*											
Nitrogen Species (as N) - mg/l		Total N A-Avg. ≤ 0.75 Total N S.V. ≤ 1.2 Nitrate S.V. ≤ 2.0 Nitrite S.V. ≤ 0.04			*	*											
Total Ammonia (as N) - mg/l		e			*												
Suspended Solids - mg/l	A-Avg. ≤ 25.0	S.V. ≤ 50			*												
Turbidity - NTU		S.V. ≤ 10			*												
Color - PCU	f	S.V. ≤ 75								*							
Total Dissolved Solids - mg/l	A-Avg. ≤ 210.0 S.V. ≤ 260.0	A-Avg. ≤ 500								*							
Chloride - mg/l	A-Avg. ≤ 26.0 S.V. ≤ 30.0	S.V. ≤ 250								*							
Sulfate - mg/l	A-Avg. ≤ 39.0 S.V. ≤ 46.0	S.V. ≤ 250								*							
Sodium - SAR	A-Avg. ≤ 1.5 S.V. ≤ 2.0	A-Avg. ≤ 8		*													
Alkalinity (as CaCO <sub>3</sub> ) - mg/l		S.V. ≥ 20			*												
E. coli - cfu/100 ml <sup>g</sup>		G.M. ≤ 126 S.V. ≤ 410					*										
Fecal Coliform - No./100 ml	A.G.M. ≤ 90.0 S.V. ≤ 300.0	S.V. ≤ 1000		*													
Toxic Materials		h															

\* = The most restrictive beneficial use.

X = Beneficial use.

a Refer to NAC 445A.122 and 445A.1622 for beneficial use terminology.

b Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the

c When flows are adequate to induce spawning runs of cui-ui and Lahontan cutthroat trout, the standard is 14°C from April through June.

d The desired temperature for the protection of juvenile Lahontan cutthroat trout is 21°C, even though that temperature is not attainable at all times.

e The ambient water quality criteria for ammonia are specified in NAC 445A.118.

f Increase in color must not be more than 10 PCU above natural conditions.

g The geometric mean must not be exceeded in any 30-day period. The single value must not be exceeded in more than 10 percent of the samples collected within any 30-day period.

h The water quality criteria for toxic materials are specified in NAC 445A.1236.

A.G.M annual geometric mean

A-AVG annual average

ΔT change in temperature

NTU nephelometric turbidity units, a measure of turbidity

PCU platinum cobalt unit, a measure of color

S.V. single value

STANDARDS OF WATER QUALITY  
Steamboat Creek at Truckee River

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use <sup>a</sup>											
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh	
Beneficial Uses			X	X	X	X	X		X	X				
Aquatic Life Species of Concern														
pH - SU		S.V. 6.0 - 9.0			*									
Dissolved Oxygen - mg/l		S.V. ≥ 3.0			*									
Total Ammonia (as N) - mg/l		b			*									
E. coli - cfu/100 ml <sup>c</sup>		G.M. ≤ 126 S.V. < 410				*								
Toxic Materials		d												

\* = The most restrictive beneficial use.

X = Beneficial use.

a Refer to NAC 445A.122 and 445A.1622 for beneficial use terminology.

b The ambient water quality criteria for ammonia are specified in NAC 445A.118.

c The geometric mean must not be exceeded in any 30-day period. The single value must not be exceeded in more than 10 percent of the samples collected within any 30-day period.

d The water quality criteria for toxic materials are specified in NAC 445A.1236.

G.M. the annual geometric mean

A-AVG annual average

S.V. single value



**STANDARDS OF WATER QUALITY**  
**Steamboat Creek at the gaging station (Rhodes Road)**

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use <sup>a</sup>												
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh		
Beneficial Uses			X	X	X	X	X	X	X	X	X				
Aquatic Life Species of Concern															
Temperature - °C		S.V. ≤ 34			*										
ΔT <sup>b</sup> - °C		ΔT ≤ 3													
pH - SU		S.V. 6.5 - 9.0			*	*					*				
Dissolved Oxygen - mg/l		S.V. ≥ 5.0			*										
Total Phosphorus (as P) - mg/l		S.V. ≤ 0.33			*	*									
Total Ammonia (as N) - mg/l		c			*										
Total Dissolved Solids - mg/l		S.V. ≤ 500							*						
E. coli - cfu/100 ml <sup>d</sup>		G.M. ≤ 126 S.V. ≤ 410				*									
Fecal Coliform -No./100 ml		S.V. ≤ 1,000		*											
Toxic Materials		e													

\* = The most restrictive beneficial use.

X = Beneficial use.

a Refer to NAC 445A.122 and 445A.1622 for beneficial use

b Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the single value standard. The ΔT of

c The ambient water quality criteria for ammonia are specified in NAC 445A.118.

d The geometric mean must not be exceeded in any 30-day period. The single value must not be exceeded in more than 10 percent of the samples collected within any 30-day period.

e The water quality criteria for toxic materials are specified in NAC 445A.1236.

G.M the annual geometric mean

A-AVG annual average

S.V. single value

**STANDARDS OF WATER QUALITY**  
Whites Creek at Steamboat Creek

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use <sup>a</sup>											
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh	
Beneficial Uses			X	X	X	X	X	X	X	X	X			
Aquatic Life Species of Concern														
Temperature - °C		S.V. ≤ 24			*									
ΔT <sup>b</sup> - °C		ΔT = 0			*									
pH - SU		S.V. 6.5 - 9.0			*									
Dissolved Oxygen - mg/l		S.V. ≤ 5.0			*									
Total Phosphorus (as P) - mg/l		S.V. ≤ 0.10			*	*								
Total Ammonia (as N) - mg/l		c			*									
Total Dissolved Solids - mg/l		S.V. ≤ 500						*						
E. coli - cfu/100 ml <sup>d</sup>		G.M. ≤ 126 S.V. ≤ 410				*								
Fecal Coliform - No./100 ml		S.V. ≤ 1000		*										
Toxic Materials		e		*										

\* = The most restrictive beneficial use.

a Refer to NAC 445A.122 and 445A.1622 for beneficial use terminology.

b Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of

c The ambient water quality criteria for ammonia are specified in NAC 445A.118.

d The geometric mean must not be exceeded in any 30-day period. The single value must not be exceeded in more than 10 percent of the samples collected within any 30-day period.

e The water quality criteria for toxic materials are specified in NAC 445A.1236.

G.M the annual geometric mean

ΔT change in temperature

S.V. single value