Selenium Project
Southeast Idaho Phosphate Resource Area

Final
2002 Supplement to 2001 Total Maximum Daily Load Baseline Monitoring Report

November 2002

Prepared for

Idaho Department of Environmental Quality
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Pocatello, Idaho 83204

Prepared by

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AREA-WIDE INVESTIGATION
SOUTHEAST IDAHO PHOSPHATE MINING RESOURCE AREA
Contract Number C023
Task Order AWI-01-01

Prepared for

IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY
Pocatello, Idaho
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FINAL
2002 SUPPLEMENT TO
2001 TOTAL MAXIMUM DAILY LOAD
BASELINE MONITORING REPORT

Selenium Project
Southeast Idaho Phosphate Mining Resource Area

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Prepared by

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EXECUTIVE SUMMARY

This report supplements the "Final 2001 Total Maximum Daily Load Baseline Monitoring Report" prepared by Tetra Tech EM Inc. (TtEMI) for Idaho Department of Environmental Quality (IDEQ) in April 2002. The main objective of this report is to update the previous report with results of surface water monitoring performed by TtEMI and IDEQ in May 2002 on streams within the upper Blackfoot River, Salt River, and Bear River watersheds in southeastern Idaho. These new results will assist the IDEQ and other stakeholders in assessing the degree to which water quality criteria for the protection of aquatic life beneficial uses are being met. This discussion is limited to total (unfiltered) selenium and the dissolved (filtered) phase of seven toxic metals regulated by Idaho Administrative Code and enforced by IDEQ.

Surface water data were collected in May 2002 from 10 monitoring stations, located downstream of current and historical phosphate mining activities, where selenium was detected in 2001 at concentrations potentially deleterious to aquatic life. At eight stations, samples were collected following 4-day averaging protocol to support data needs of IDEQ. Selenium was the only chemical detected to exceed State of Idaho surface water quality criteria. At three stations on the Blackfoot River and one station at the mouth of Spring Creek, 4-day averaged selenium concentrations exceeded the Criteria Continuous Concentration. Selenium in Spring Creek also exceeded the Criteria Maximum Concentration.

Results of May 2002 monitoring were integrated with results of monitoring performed by combined efforts of TtEMI, IDEQ, and Montgomery Watson between 1998 and 2001 and related to concurrent climatic conditions for the study area. Results suggest that surface water selenium concentrations appear to be influenced by yearly fluctuations in snow water equivalent. The greatest selenium concentrations were observed when snow water equivalent and percent of normal snow water equivalent were greatest at time of sample collection.

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ACRONYMS AND ABBREVIATIONS

μg/L	Micrograms per Liter
ACPR	Accumulated Precipitation
ACZ	ACZ Laboratories, Inc.
CCC	Criteria Continuous Concentration
CFR	Code of Federal Regulations
cfs	Cubic Feet per Second
CMC	Criteria Maximum Concentration
FSP	Field Sampling Plan
g/d	Grams per Day
HSP	Health and Safety Plan
IDEQ	Idaho Department of Environmental Quality
in	Inches
MDL	Method Detection Limit
mg $CaCO_3$/L	Milligrams Calcium Carbonate Per Liter
MW	Montgomery Watson
NRCS	National Resource Conservation Service
QAPP	Quality Assurance Project Plan
QC	Quality Control
SAP	Sampling and Analysis Plan
SWEQ	Snow Water Equivalent
TMDL	Total Maximum Daily Load
TtEMI	Tetra Tech EM Inc.
U of I	University of Idaho Analytical Sciences Laboratory
USGS	U.S. Geological Survey
WQS	Water Quality Standards
WRCC	Western Regional Climate Center
WY	Water Year

1.0 INTRODUCTION

In May 2002, Tetra Tech EM Inc. (TtEMI) and Idaho Department of Environmental Quality (IDEQ) monitored stream water quality in the upper Blackfoot River, upper Salt River, and upper Bear River watersheds in the Southeastern Idaho Phosphate Mining Resource Area (Resource Area) (Figure 1). The monitoring was a continuation of baseline monitoring activities initiated in 2001 and documented in the "Final TMDL Baseline Monitoring Report" (TtEMI 2002a). This report supplements the previous report (TtEMI 2002a) by presenting results of May 2002 monitoring activities and comparing them to 2001 results. In addition, this report relates results from monitoring efforts completed by Montgomery Watson (MW) (1998 through 2000) and TtEMI and IDEQ (2001 through 2002) to concurrent climatic conditions for the Resource Area. The following sections provide project background information and summarize objectives and results of baseline monitoring activities performed in 2001.

1.1 PROJECT BACKGROUND

Phosphate mining has been conducted in the Resource Area since 1907. Concerns over possible impacts from historical and current mining prompted IDEQ to assess surface water quality in the Resource Area. Previous investigations demonstrated that selenium, cadmium, and other trace metals are present in the Resource Area watersheds at concentrations potentially deleterious to aquatic life beneficial uses. The presence of selenium and other toxic constituents in these watersheds is ultimately related to the watersheds' underlying geology and mineralogy. Mining activity in these watersheds over the last 100 years is believed to have accelerated the rate at which these substances are exposed to weathering processes and released to surface waters within the watershed.

All perennial streams within the Resource Area watersheds include aquatic life as a beneficial use. A water quality standard (WQS), as defined by the Clean Water Act and Idaho state law, links a beneficial use with criteria for protection of that use (Grafe et al. 2000). Criteria are expressed as numeric values or narrative statements for specific physical and chemical water quality constituents. Only numeric criteria expressed for the protection of aquatic life beneficial uses are discussed in this report. Numeric criteria are typically expressed as single-value concentrations that, if exceeded, may indicate impairment of beneficial uses. In the case of selenium and metals, criteria represent toxicity thresholds for sensitive species established by scientific research. The National Toxics Rule (NTR) (40 CFR 131.36 b[1]) specifies criteria for selenium and metals in terms of chronic and acute exposure durations. State of Idaho water quality regulations generally defer to the NTR, but exceptions are provided in Idaho Administrative Code, under Idaho Administrative Procedures Act, chapter 58.01.02, subpart 210.02. Any stream or

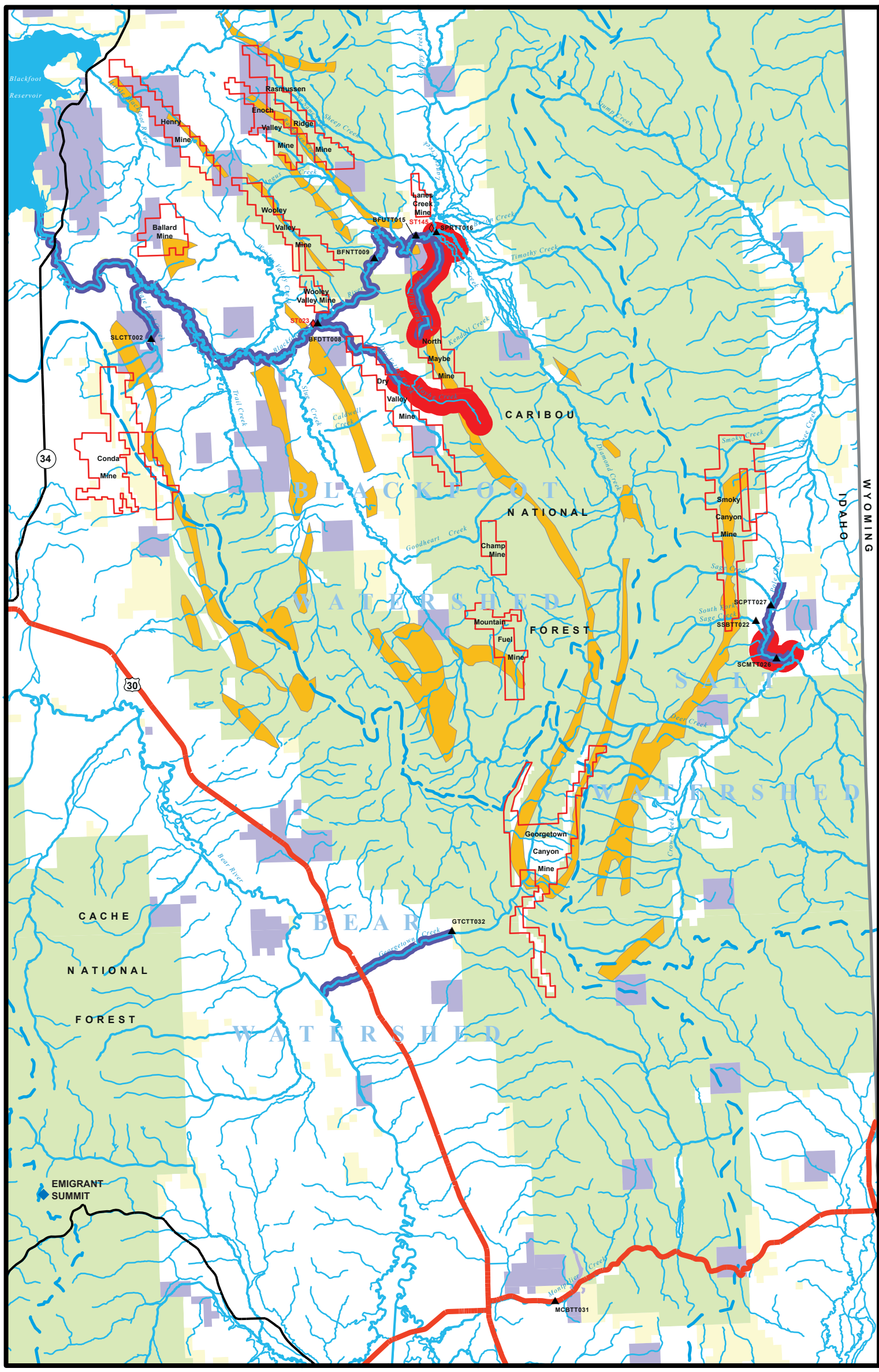
stream reach assessed by IDEQ as impaired is identified in Idaho's 305(b) report and then placed on Idaho's 303(d) list. Once placed on the 303(d) list, IDEQ must schedule and subsequently develop a TMDL for each listed pollutant in each waterbody or waterbody segment. Further discussion on the TMDL water quality standards and the TMDL process in Idaho is provided by TtEMI (2002a).

Streams from each of the three study watersheds are listed on the State of Idaho's 1998 303(d) list. The pollutants causing the listings are mainly sediment and nutrients. Only one stream, Meadow Creek, in the Bear watershed is listed for metals; however, IDEQ has not been able to verify the reason for its initial listing (TtEMI 2002a). The Blackfoot River, which is considered to be a high-priority for TMDL development, is listed for nutrients, sediment, and organic constituents. In 2001, IDEQ released the report, "Blackfoot River TMDL—Waterbody Assessment and Total Maximum Daily Load" (IDEQ 2001). The report presents results from IDEQ's subbasin assessment and loading analyses for the entire Blackfoot subbasin. IDEQ presents results of loading analyses for sediment and nutrients only. IDEQ is currently developing the 2002 State of Idaho 303(d) list. Results of 2001 through 2002 monitoring performed on Resource Area streams may be used by IDEQ to identify streams to add to the 303(d) list for 2002 and prioritize for future TMDL development.

1.2 2001 BASELINE MONITORING ACTIVITIES

IDEQ retained TtEMI in October 2000 to perform an independent review of the existing data and preliminary risk assessment compiled and published by the Idaho Mining Association (IMA) Selenium Committee. TtEMI also assisted IDEQ in developing area-wide human health and ecological risk assessments associated with past phosphate mining operations in the Resource Area. Under a separate action, IDEQ contracted TtEMI to conduct surface water and sediment sampling to support the development of the risk assessments and to assist in evaluating surface water quality for compliance with regulatory requirements. Surface water quality data needs for the risk assessments and the TMDL process were similar; therefore, the data collection efforts were combined to avoid duplication and to reduce costs.

In May, June, and September 2001, TtEMI and IDEQ performed surface water monitoring on streams within the three Resource Area watersheds. Objectives of the 2001 monitoring events were to (1) fulfill data needs of concurrent human health and ecological risk assessments, and (2) assist IDEQ in determination of baseline surface water quality in the Resource Area. Surface water samples were collected from 31 monitoring stations over the course of 2001 baseline monitoring. Of the 31 stations, 22 were located downstream from mining activities, and nine were assumed to represent background or



Legend

- 2002 Tetra Tech EM Inc. Monitoring Stations
- 1998-1999 Montgomery Watson Monitoring Stations
- Snotel Stations
- Impacted Stream Reaches as found by Montgomery Watson in 1998-99*
- Impacted Stream Reaches as found by Tetra Tech EM Inc. in 2001*
- U.S. Highway
- State Highway
- Streams
- Lakes
- Watershed Boundaries
- Mine Areas
- Phosphate Formations

Land Ownership

- National Forests
- Bureau of Land Management
- State of Idaho
- Private Lands

* An "impacted stream reach" is defined as a stream reach where selenium has exceeded the chronic criterion (5 ug/L) at least once. The linear extent of each buffer used to represent an impacted stream reach is estimated. The buffers used in this map may not reflect every stream reach where an exceedance of the chronic selenium criterion has occurred historically.

N

0 1 2 3 4 Miles

GIS map by Ed Madej 08/22/02
Idaho200.mxd
figure1_082202.ai

Figure 1

Map of Study Area

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reference conditions. Results of 2001 baseline monitoring activities are summarized by TtEMI (2002a). The report focused on results pertinent to the regulatory interests of IDEQ. Emphasis was placed on streams where results of laboratory analyses indicated toxic pollutants were present at concentrations that exceeded regulatory criteria and could potentially impair aquatic life beneficial uses. Toxic pollutants included selenium and metals, as defined by the NTR and Idaho WQS and regulated by IDEQ. Results of TtEMI's human health and ecological risk assessments are presented by TtEMI (2002b, 2002c).

Overall, concentrations of selenium and metals observed in 2001 were lower than reported by previous studies. This may have been due to stream flows that were notably lower than during previous years. On average, concentrations of selenium and other metals were highest during flows associated with peak snowmelt conditions. Arsenic was below laboratory detection limits for water samples collected from all stations during all three monitoring events. Copper, nickel, and zinc were detected at the majority of impacted and background stations during all three events. Results for other metals exhibited variation in the number of stations where they were detected over the course of 2001 monitoring. Selenium was detected at 10 to 13 impacted stations during each event and at only three background stations in September. Observed selenium concentrations exceeded chronic criteria in Spring Creek during the May and June monitoring events, exceeded acute criteria in East Mill Creek during all three monitoring events, and exceeded chronic criteria near the mouth of Sage Creek during the September monitoring event only. During each event, the highest selenium concentration was observed in East Mill Creek, downstream of the North Maybe Mine.

A selenium loading analysis was performed to evaluate trends in selenium loads over the course of 2001 monitoring at individual monitoring stations and along stream reaches within the study area watersheds. At most stations, selenium loads were highest during the May 2001 monitoring event and consistently decreased over the course of 2001 monitoring. From evaluation of selenium loads in the Blackfoot River, results suggest that there are unknown sources of selenium that were not scheduled for sampling in 2001. Such sources may include discharge of shallow groundwater, tributary streams, or entrainment of selenium from in-stream bank or bottom materials. Results also suggest that selenium is immobilized or somehow withdrawn from the water column in certain reaches of the Blackfoot River and East Mill Creek.

To further assist IDEQ in assessing selenium concentrations in study area streams, TtEMI compiled analytical results from surface water monitoring performed by MW in 1998 and 1999 and TtEMI in July 2001. Overall, selenium concentrations in streams sampled in 1998, 1999, or both years were

considerably greater than selenium concentrations observed in the same streams sampled in 2001. This appears strongly related to low flow conditions associated with decreased runoff in 2001, when compared to conditions in 1998 and 1999. Evaluation of all TtEMI and MW surface water selenium data revealed exceedances of chronic selenium criteria at least once in Georgetown Creek, Sage Creek, East Mill Creek, Spring Creek, Maybe Creek, Dry Valley Creek, Trail Creek, State Land Creek, and the Blackfoot River.

2.0 2002 SURFACE WATER MONITORING OBJECTIVES

The goal of the 2002 baseline surface water monitoring plan was to further assist IDEQ in determining whether Resource Area streams are meeting water quality standards or are impaired due to excessive concentrations of metals. Based on direction from IDEQ, the 2002 monitoring efforts focused primarily on streams where historical water quality data have exceeded the Idaho regulatory criteria for selenium and select toxic metals. The overall objectives of 2002 monitoring were as follows:

1. Conduct surface water sampling at select streams within the Resource Area following 4-day averaging protocol.
2. Determine water quality exceedances via comparisons of laboratory analytical results for selenium and other toxic constituents with regulatory criteria.
3. Estimate constituent loads at individual surface water sampling stations.

To meet these objectives, two sampling events were originally proposed for the late spring to early summer snowmelt season. Like 2001, 2002 was a relatively dry year. IDEQ curtailed its original 2002 monitoring plans, and only one monitoring event was implemented in May 2002.

3.0 CLIMATIC AND HYDROLOGIC CONDITIONS FOR RESOURCE AREA

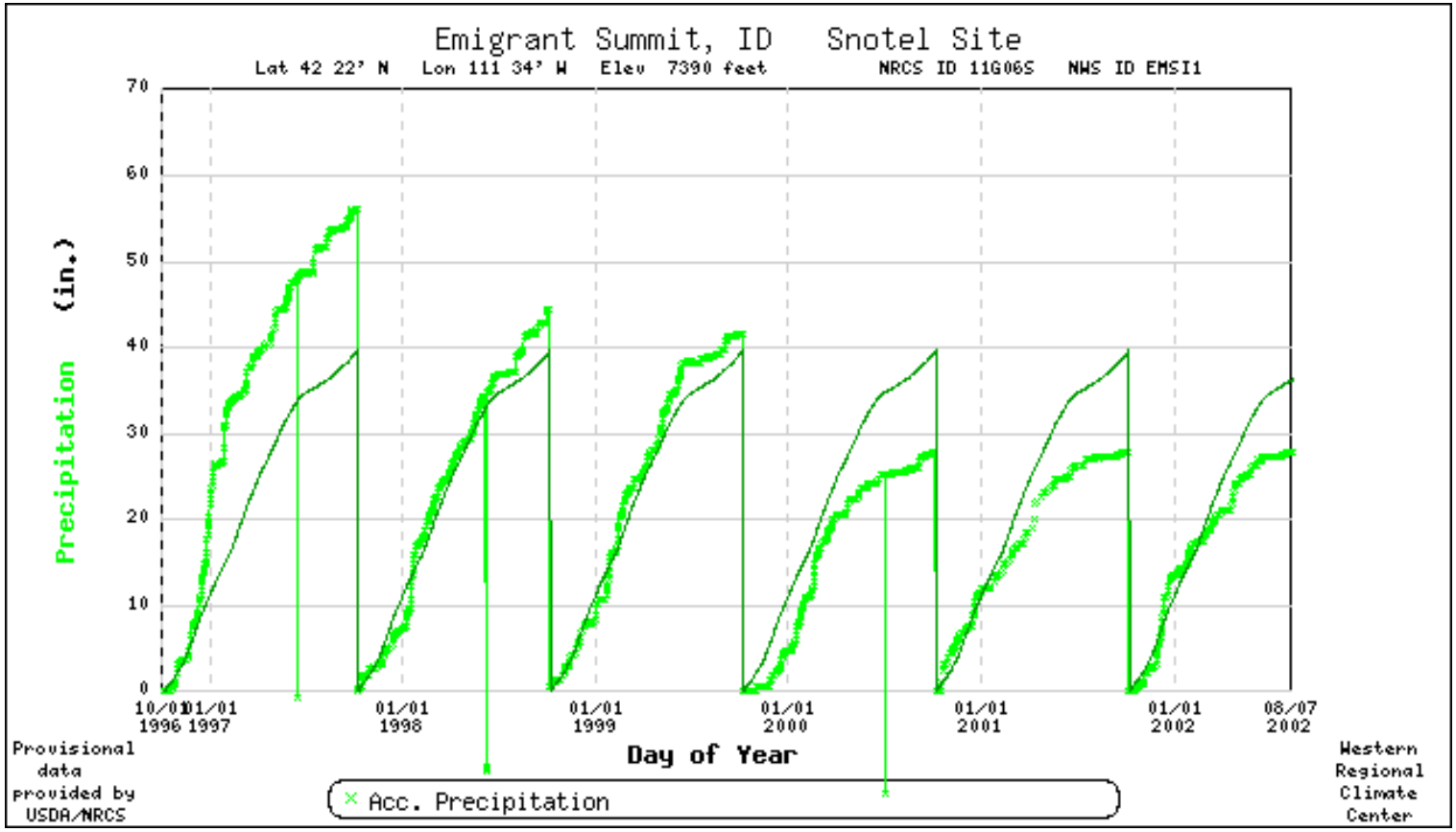
TtEMI evaluated daily accumulated precipitation (ACPR) and snow water equivalent (SWEQ) data collected by the National Resource Conservation Service (NRCS) from its SNOTEL station located at Emigrant Summit, Idaho (elevation 7,390 feet) (Figure 1). The SNOTEL data is provided by the Western Regional Climate Center (http://www.wrcc.dri.edu). ACPR refers to the total precipitation, regardless of form, accumulated at a station over the course of a water year (WY), which runs from October 1 to September 30. SWEQ is the depth of water potentially obtained by melting the snow cover. SWEQ is influenced by meteorological factors such as temperature, relative humidity, and wind.

Snowmelt runoff heavily influences stream flow in the Resource Area. Figure 2 presents observed and average ACPR reported for Emigrant Summit, Idaho SNOTEL station from WY-1997 through August 7 of WY-2002. Figure 3 presents observed and average SWEQ reported for the same SNOTEL station and time period. From visual inspection of Figures 2 and 3, both ACPR and SWEQ were above average during WY-1997. During WY-1998 and WY-1999, ACPR was slightly above average, while SWEQ was close to average. During WY-2000 and WY-2001, ACPR and SWEQ were below average. Both ACPR and SWEQ for WY-2002 are below average. WY-2002 ACPR is comparable to WY-2000 and WY-2001 ACPR. In contrast, WY-2002 SWEQ is greater than WY-2000 and WY-2001 SWEQ. This suggests that WY-2002 snowpack held more water compared to WY-2000 and WY-2001 snowpacks. In addition, this suggests that snowmelt runoff in WY-2002 was greater than in WY-2000 and WY-2001.

TtEMI analyzed flow data from the U.S. Geological Survey (USGS) for the gaging station Blackfoot River above Blackfoot Reservoir at Henry, Idaho. Figure 4 presents observed daily mean flows from April 2001 to July 2002 reported for the gaging station. Daily mean flow is the mean flow calculated for all flow rates observed at a gaging station on a specific date (month/date/year). The figure also presents the mean of daily mean flows based on a 29-year period of record. Mean of daily mean flows is the mean of all daily mean flows observed on a specific date (month/date) over a period of record. Daily mean flow was below average from April 2001 to December 2001. From December 2001 to April 2002, daily mean flow was above average. From April 2002 to present, daily mean flow was below average.

FIGURE 2

1997 – 2002 ACCUMULATED PRECIPITATION, EMIGRANT SUMMIT, IDAHO, SNOTEL STATION



Notes

1. Data are available from Western Regional Climate Center (http://www.wrcc.dri.edu).
2. Light green line represents observed daily accumulated precipitation reported for SNOTEL station.
3. Dark green line represents daily average accumulated precipitation reported for SNOTEL station, WY 1971 – WY 2000.

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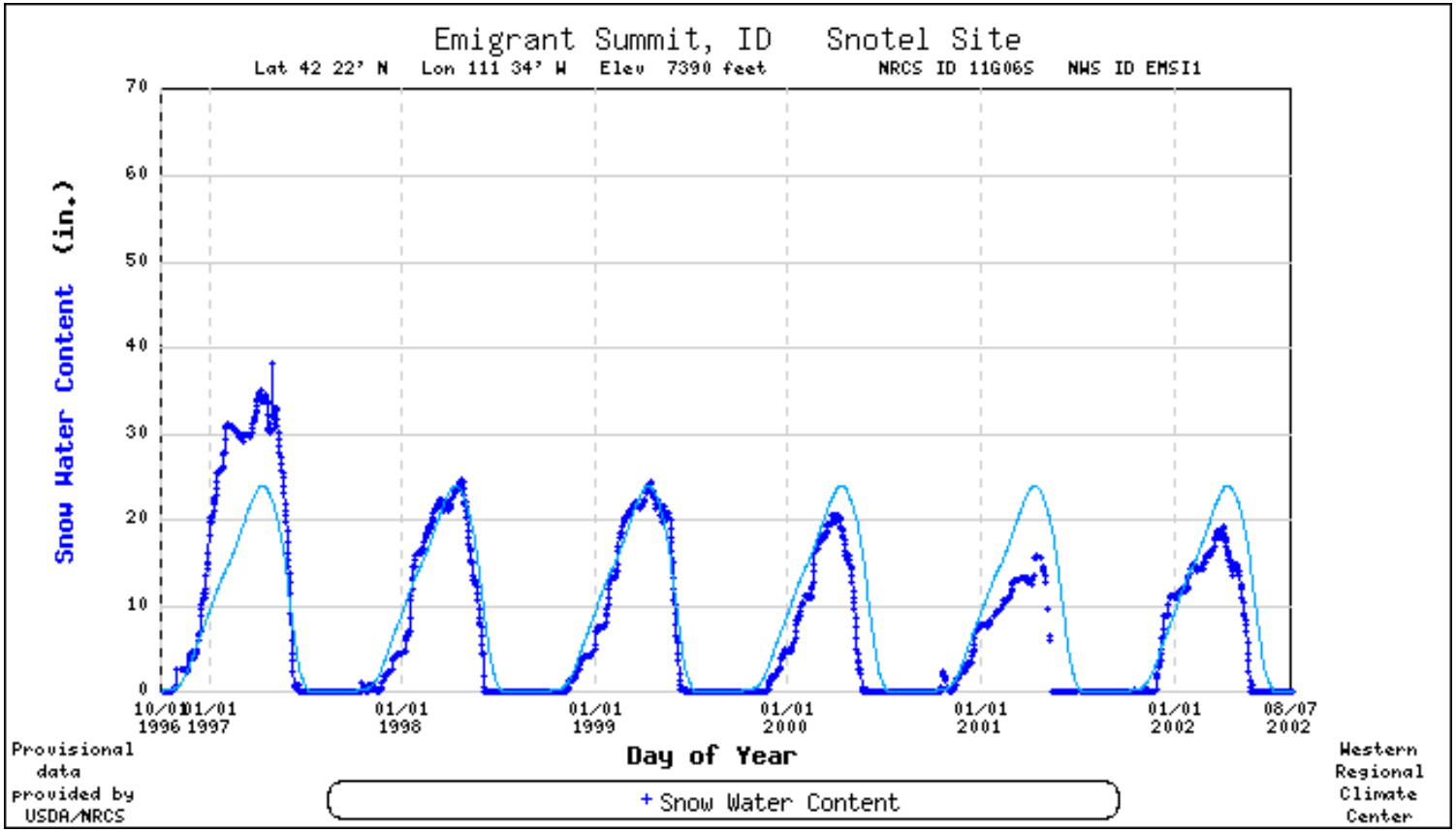
FIGURE 3

1997 – 2002 SNOW WATER EQUIVALENT, EMIGRANT SUMMIT, IDAHO, SNOTEL STATION



Notes

1. Data are available from Western Regional Climate Center (http://www.wrcc.dri.edu).
2. Dark blue line represents observed daily snow water equivalent for SNOTEL station.
3. Light blue line represents daily average snow water equivalent reported for SNOTEL station, WY 1971 – WY 2000.

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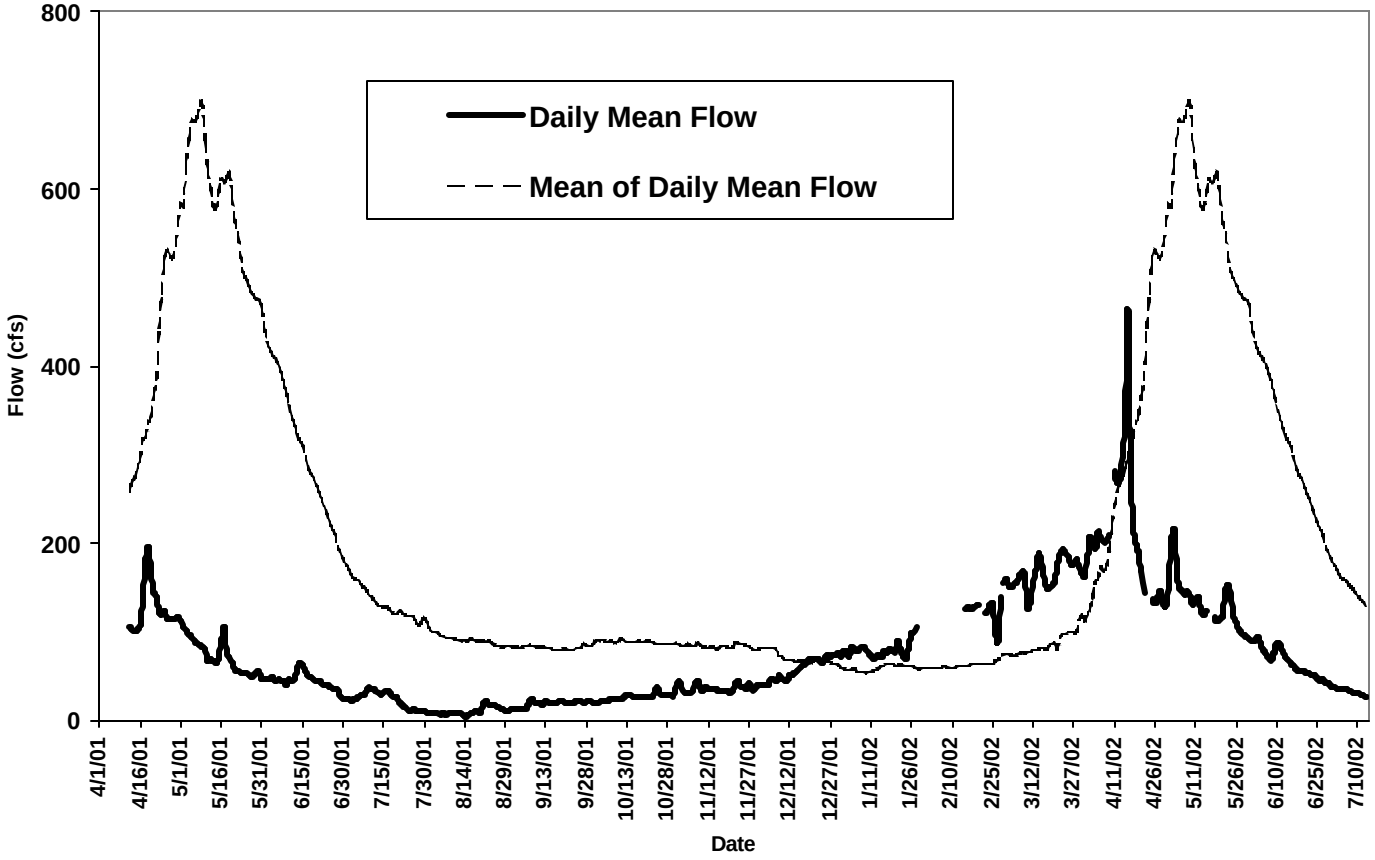
FIGURE 4
USGS GAGE 13063000, BLACKFOOT RIVER ABOVE RESERVOIR NEAR HENRY, IDAHO
DAILY MEAN FLOW
APRIL 2001 - JULY 2002



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4.0 METHODS

This section discusses the selection of monitoring stations for the 2002 monitoring event and development of sampling work plans, field sampling and field parameter measurement methods, stream flow measurement methods, and laboratory analytical methods.

4.1 WORK PLAN DEVELOPMENT

Overall, 2002 field and laboratory methods were very similar to field and laboratory methods used during the 2001 TMDL baseline monitoring. Prior to sampling in 2002, TtEMI prepared a sampling and analysis plan (SAP) addendum, which included a field sampling plan (FSP) and quality assurance project plan (QAPP). The SAP addendum deferred entirely to the health and safety plan (HSP) provided by TtEMI (2001).

4.2 2002 MONITORING STATIONS

Based on direction from IDEQ, 2002 sample collection efforts focused on streams identified by TtEMI (2002a) where historical water quality data have demonstrated exceedances of Idaho regulatory criteria for selenium. Streams identified by TtEMI (2002a) to be selenium-impacted are shown on Figure 1. Table 1 lists the surface water monitoring stations sampled in 2002. TtEMI and IDEQ previously monitored all stations listed in Table 1 in May, June, and September 2001. Per instruction from IDEQ, East Mill Creek was not included in the 2002 monitoring program. The exceedances of acute criteria for selenium observed in East Mill Creek during all 2001 monitoring events constituted a water quality violation. IDEQ did not need additional data from the stream in 2002 to satisfy regulatory interests.

4.3 SAMPLE COLLECTION METHODS

During 2002, sample collections by the TtEMI and IDEQ field teams primarily followed 2001 sampling methods described by TtEMI (2001, 2002a). The following sections describe new or unique methods followed in 2002.

4.3.1 Surface Water Sampling

Field teams followed USGS and Federal Interagency Sedimentation Project sampling methods described by TtEMI (2001, 2002a). 4-day averaging protocol was followed to support comparisons of laboratory results with chronic water quality criteria. Field teams filtered samples following methods described by TtEMI (2002a). Field quality control (QC) samples were collected and included field duplicates, equipment rinsates, source water blanks, and splits.

TABLE 1

2002 SURFACE WATER MONITORING STATIONS

Station Identification	Station Name	Watershed
SLCTT002	State Land Creek	Blackfoot
BFDTT008	Blackfoot River below Dry Valley Creek	Blackfoot
BFNTT009	Blackfoot River above Narrows	Blackfoot
BFUTT015	Blackfoot River at upper bridge	Blackfoot
SPRTT016	Spring Creek (mouth)	Blackfoot
MCBTT031	Montpelier Creek below mining	Bear
GTCTT032	Georgetown Creek	Bear
SCMTT026	Sage Creek (mouth)	Salt
SCPTT027	Sage Creek below Pole Creek	Salt
SSBTT022	South Fork Sage Creek below mining	Salt

4.3.2 Sample Identification

Sample identification in 2002 was similar to the sample identification scheme described by TtEMI (2001, 2002b). The only difference is that the sample date was included in the sample identification string. The following sample numbering system was used for the 2002 investigation:

A-B-C-D

where:

A = Sample matrix (SW = surface water sample; DW = distilled water for equipment rinsate sample and source water blank)

B = Sample date using MMDDYR format (MM = two-digit month, DD = two-digit day, and YR = two-digit year of date sample is collected)

C = Sampling station number (designated sampling station number; equipment rinsate samples will be designated with an “X” and source water samples with a “Y”, followed by the order in which it was collected during the sampling event)

D = Sampling event and sample type (sample types include primary, duplicate, and split [SP] samples)

4.3.3 Sample Documentation and Custody

Sample documentation and custody procedures in 2002 followed those described by TtEMI (2001, 2002a).

4.3.4 Sample Shipment

Sample shipment procedures in 2002 followed those described by TtEMI (2001, 2002a).

4.3.5 Decontamination

Decontamination procedures in 2002 followed those described by TtEMI (2001, 2002a).

4.4 FIELD PARAMETER MEASUREMENT METHODS

Field parameters were measured at each station during collection of surface water quality samples. Where possible, instream measurements of all field parameters were taken. Field parameter measurement methods in 2002 followed those described by TtEMI (2001, 2002a). Parameters measured in the field in 2002 included pH, oxidation and reduction potential, specific conductance, dissolved oxygen, turbidity, and temperature.

4.5 STREAM FLOW MEASUREMENT METHODS

In 2002, field teams measured stream flow at all monitoring stations where samples were collected except SLCTT002. Flow measurement procedures in 2002 followed those described by TtEMI (2001, 2002a).

4.6 LABORATORY ANALYSES

ACZ Laboratories, Inc. (ACZ), in Steamboat Springs, Colorado, was the primary laboratory used by TtEMI and IDEQ in 2002. The University of Idaho Analytical Sciences Laboratory (U of I) in Moscow, Idaho only performed laboratory analyses on split samples collected in the field. All sample containers were provided by the laboratories and certified to be clean. Both laboratories provided pre-preserved bottles for analysis of samples requiring preservation. All samples collected in the field were cooled to 4 degrees Celsius and shipped under chain-of-custody to the laboratories the day after sample collection occurred for next day delivery.

Table 2 presents the laboratory analyses performed by the laboratories, including analytical methods and corresponding method detection limits (MDL). Arsenic and mercury, which are both addressed as toxic constituents by the NTR and Idaho Administrative Code, were not included among the 2002 analytical suite. In 2001, arsenic was consistently below laboratory detection levels during all three baseline monitoring events. Mercury was detected at specific stations over the course of 2001 monitoring, but it was never detected above regulatory criteria. MDLs for all toxic constituents regulated by IDEQ in the 2002 analytical suite were below all applicable regulatory criteria.

TABLE 2
LABORATORY ANALYTES AND ANALYTICAL METHODS FOR 2002 MONITORING

Analyte	ACZ Laboratories, Inc.		University of Idaho Analytical Sciences Laboratory		Units
	MDL	Method	MDL	Method	
Bicarbonate alkalinity	2.00	SM 2320B	NA	NA	mg $CaCO_3$/L
Cadmium, dissolved	0.10	EPA 200.8 ICP-MS	0.13	EPA 200.8 ICP-MS	µg/L
Calcium, dissolved	200.00	EPA 200.7 ICP	20.0	EPA 200.7 ICP	µg/L
Carbonate alkalinity	2.00	SM 2320B	NA	NA	mg $CaCO_3$/L
Chromium, dissolved	0.10	EPA 200.8 ICP-MS	0.50	EPA 200.8 ICP-MS	µg/L
Cobalt, dissolved	10.0	EPA 200.7 ICP	20.0	EPA 200.7 ICP	µg/L
Copper, dissolved	0.50	EPA 200.8 ICP-MS	0.13	EPA 200.8 ICP-MS	µg/L
Hardness	1.00	SM 2340B-Calculation	NA	NA	mg $CaCO_3$/L
Hydroxide alkalinity	2.00	SM 2320B	NA	NA	mg $CaCO_3$/L
Lead, dissolved	0.10	EPA 200.8 ICP-MS	0.25	EPA 200.8 ICP-MS	µg/L
Magnesium, dissolved	200.0	EPA 200.7 ICP	20.0	EPA 200.7 ICP	µg/L
Nickel, dissolved	0.20	EPA 200.8 ICP-MS	0.13	EPA 200.8 ICP-MS	µg/L
Nitrate-N+Nitrite-N	20.0	EPA 353.2	NA	NA	µg/L
Selenium	1.00 – 2.00	SM 3500-Se C, AA-Hydride	1.0	ICP - HG	µg/L
Silver	0.05	EPA 200.8 ICP-MS	0.25	EPA 200.8 ICP-MS	µg/L
Total alkalinity	2.00	SM 2320B	NA	NA	mg $CaCO_3$/L
Total organic carbon	1.00	EPA 415.1 Oxidation/IR	NA	NA	mg/L
Total phosphorus	10.0 – 30.0	EPA 365.1 – Auto Ascorbic Acid	NA	NA	µg/L
Total suspended solids	5.00	EPA 160.2 - Gravimetric	NA	NA	mg/L
Zinc, dissolved	10.0	EPA 200.7 ICP	10.0	EPA 200.7 ICP	µg/L

Notes:
µg/L Micrograms per liter
AA Atomic adsorption

TABLE 2 (Continued)

LABORATORY ANALYTES AND ANALYTICAL METHODS FOR 2002 MONITORING

Notes (continued):

EPA	U.S. Environmental Protection Agency
ICP	Inductively coupled plasma atomic emission spectrometer
ICP-HG	Inductively coupled plasma-hydride generation
ICP-MS	Inductively coupled plasma-mass spectrometer
IR	Infrared spectrometer
MDL	Method detection limit
mg $CaCO_3$/L	Milligrams of calcium carbonate per liter
NA	Not applicable
Se	Selenium
SM	Standard method

5.0 RESULTS

The results and discussion in this section are limited to selenium and metals within the 2002 sampling and analysis program that have WQS enforced by IDEQ. Analytes with observed concentrations exceeding chronic and acute numeric criteria are emphasized. Surface water laboratory results and field data are presented in Appendix A.

5.1 EVENT DESCRIPTION

The 2002 monitoring commenced on May 7, 2002, and ended on May 11, 2002. Two, two-person field teams, composed of TtEMI, IDEQ, and U.S. Forest Service staff performed the monitoring. Over the course of the monitoring, meteorological conditions varied among the three watersheds within the Resource Area. Leading to the start of the May 2002 monitoring, the weather was relatively dry. Intermittent rain occurred on May 7, May 8, and May 10. May 9 and May 11 were dry. Heavy rainfall occurred on the night of May 10. Daytime air temperatures ranged between approximately 30 and 60 degrees Fahrenheit.

At eight of the 10 stations in Table 1, field teams collected samples following 4-day averaging procedures in which three samples are collected over four days (96-hours). The only exceptions were stations State Land Creek (SLCTT002) and South Fork Sage Creek below mining (SSBTT022), where only one sample was collected. Field teams were able to collect only one sample from SLCTT002 due to access difficulties. Per instruction from IDEQ, only one sample was collected from SSBTT022. Field QC samples included a total of three field duplicate samples, two equipment rinsate samples, one source water blank sample, and four split samples.

Surface water and field QC samples were submitted to ACZ and U of I laboratories for analysis. AZC performed all analyses in Table 3 on the first sample collected from each monitoring station as well as all field QC samples, except split samples. On all subsequent samples, ACZ performed selenium, metals, and hardness analyses only. U of I performed the full suite of analyses in Table 3 on the four split samples collected in the field.

5.2 OBSERVED STREAM FLOW

Field teams measured stream flow at all monitoring stations where surface water samples were collected except SLCTT002. Figures 5 and 6 show bar graphs of observed stream flow in the upper Blackfoot and combined Salt and Bear watersheds, respectively. For both figures, monitoring stations presented on the

FIGURE 5

OBSERVED FLOWS IN UPPER BLACKFOOT RIVER WATERSHED DURING MAY 2001 AND 2002 MONITORING EVENTS

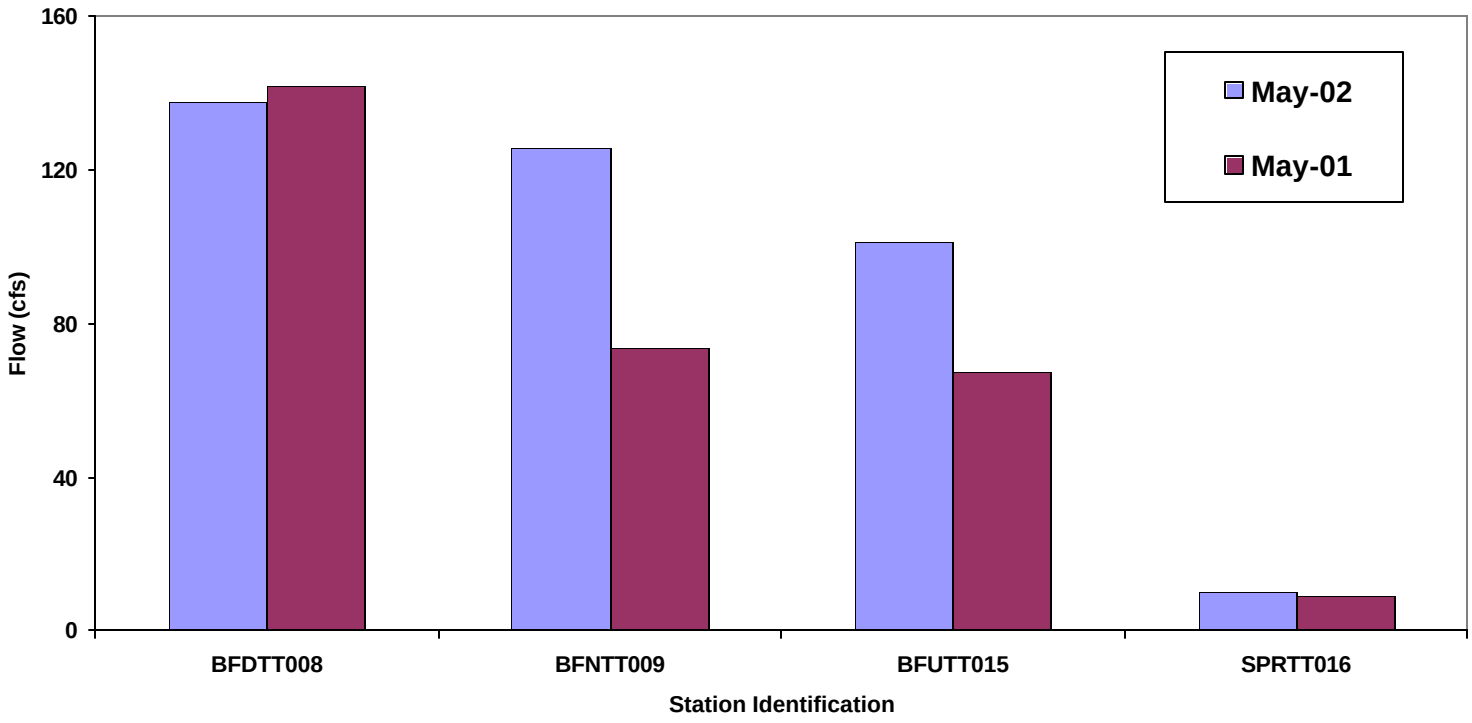

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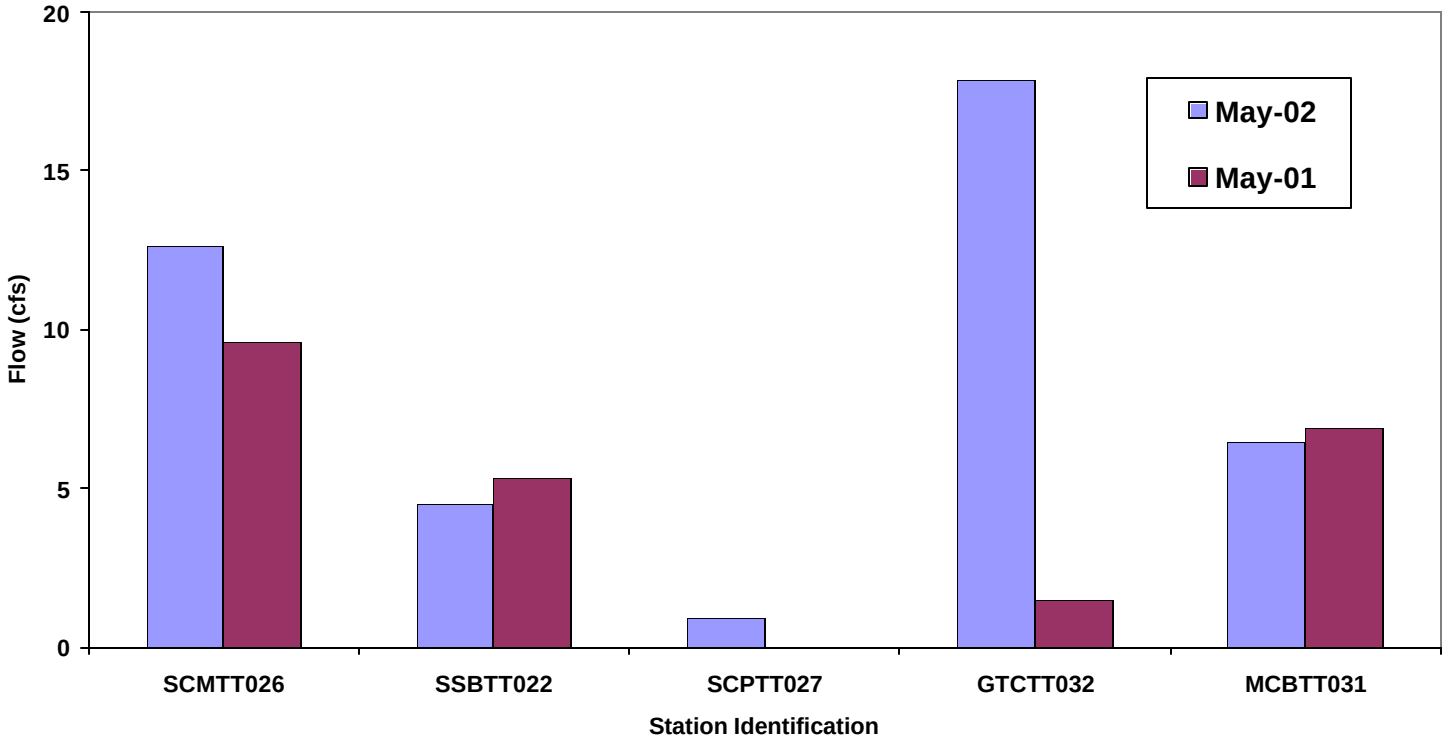
FIGURE 6

OBSERVED FLOWS IN SALT AND BEAR RIVER WATERSHEDS DURING MAY 2001 AND 2002 MONITORING EVENTS



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X-axis are arranged such that the higher-elevation stations are toward the right and the lower-elevation stations, closer to the watershed's outlet, are toward the left. The average of the three flow measurements observed at each station was calculated and is presented on these figures. For comparison purposes, where available, May 2001 flows recorded at the same stations are also shown on both Figures 5 and 6.

No consistent patterns for stream flows appear in comparing flows between May 2001 and May 2002. In streams on which multiple monitoring stations were located, such as the Blackfoot River and Sage Creek, observed flows generally increased with distance downstream. Such increases are typically expected as a result of increasing downstream inflows from tributaries and shallow groundwater discharge. Exceptions to this may have resulted from flow measurement error, daily monitoring schedules, influence of rainfall, or flow diversions.

5.3 DETECTIONS AND NUMERIC CRITERIA EXCEEDANCES

This section discusses laboratory results for selenium and other toxic constituents included in the 2002 sampling and analysis program that are also regulated by IDEQ. Emphasis is placed on observed exceedances of chronic and acute criteria. *Exceedances* are defined by laboratory result values that exceed Idaho numeric criteria for protection of aquatic life beneficial uses.

All observed data and respective criteria were compared directly, except for chromium. Dissolved total chromium observations were compared with Idaho trivalent and hexavalent chromium criteria because neither the NTR nor the State of Idaho provides criteria for total chromium. This approach was used as part of evaluations of chromium data collected in 2001 (TtEMI 2002a). Prior to commencement of 2001 monitoring, TtEMI conservatively decided to analyze for total chromium, rather than for each species separately. The decision was based on the assumption that if the results for total chromium did not exceed criteria for either species, then there is no issue from a regulatory standpoint. However, if the results for total chromium exceeded criteria for either species, TtEMI would recommend analyzing for both chromium species during future sampling. During all 2001 monitoring events, total chromium was never observed to exceed chronic or acute criteria for either chromium species.

Table 3 tallies the number of stations at which concentrations of selenium and metals were above laboratory detection limits and above Idaho regulatory criteria. Cadmium, lead, and zinc were below laboratory detection limits at all 10 stations. Copper (8/10) and chromium (9/10) were detected at the majority of stations. Nickel and selenium were detected at all 10 stations. The only analyte observed to exceed Idaho regulatory criteria was selenium.

TABLE 3

2002 MONITORING LABORATORY DETECTIONS AND EXCEEDANCES OF NUMERIC CRITERIA BY ANALYTE

Analyte [a]	# STA detected (MAX = 10)	# STA > chronic criterion (MAX = 10)	# STA > CCC[b] (MAX = 8)	# STA > CMC[b] (MAX = 10)
Cadmium	0	0	0	0
Chromium (III) [c]	9	0	0	0
Chromium (VI) [c]	9	0	0	0
Copper	8	0	0	0
Lead	0	0	0	0
Nickel	10	0	0	0
Selenium	10	4	4	1
Silver	0	NA	NA	0
Zinc	0	0	0	0

Notes:

#	Number of
>	Greater than
III	Trivalent
VI	Hexavalent
µg/L	Micrograms per liter
CCC	Criteria continuous concentration
CMC	Criteria maximum concentration
MAX	Maximum possible
NA	Not applicable
STA	Monitoring station

[a] Results for all toxic constituents apply to dissolved (unfiltered) phase, except for selenium.
[b] State of Idaho CCC for selenium = 5.0 µg/L; CMC = 20.0 µg/L
[c] Laboratory results for total recoverable chromium were compared with criteria for chromium (III) and chromium (VI).

Table 4 presents all selenium concentration data observed at monitoring stations sampled in 2002. Individual concentrations and 4-day averaged concentrations are shown. 4-day averaged selenium concentrations exceeded the Idaho Criteria Continuous Concentration (CCC) at the following four stations: Blackfoot River below Dry Valley Creek (BFDTT008), Blackfoot River above Narrows (BFNTT009), Blackfoot River at Upper Bridge (BFUTT015), and Spring Creek mouth (SPRTT016). All Selenium in all samples collected at SPRTT016 exceeded the Idaho Criteria Maximum Concentration (CMC). At SPRTT016, the CCC and CMC exceedances in May 2002, coupled with the CCC exceedance observed in June 2001, demonstrate non-compliance with Idaho WQS.

TABLE 4

SELENIUM CONCENTRATIONS OBSERVED AT 2002 SURFACE WATER MONITORING STATIONS

Station Identification	Sample 1 (µg/L)	Sample 2 (µg/L)	Sample 3 (µg/L)	4-day AVG (µg/L)
SLCTT002	3.0	NA	NA	NA
BFDTT008	5.0	8.0	8.0	7.0
BFNTT009	6.0	8.0	7.0	7.0
BFUTT015	7.0	9.0	10	8.7
SPRTT016	72	68	68	69
MCBTT031	2.0	2.0	2.0	2.0
GTCTT032	2.0	2.0	2.0	2.0
SCMTT026	3.0	5.0	5.0	4.3
SCPTT027	1.0	1.0	1.0	1.0
SSBTT022	2.0	NA	NA	NA

Notes:

µg/L Micrograms per liter
AVG Average
NA Not applicable

5.4 INTEGRATION OF 2001 AND 2002 SELENIUM DATA

The 2002 selenium and flow data were integrated with 2001 selenium and flow data and used to develop graphs to aid in evaluating selenium concentrations and loads in the study watersheds. The following sections discuss those graphs.

5.4.1 2001-2002 Selenium Concentrations

Figure 7 presents selenium concentrations observed at the 10 monitoring stations sampled in 2002 and also shown in Table 4. For comparison purposes, selenium concentrations observed during all events in 2001 at the same stations are also shown. In cases where 4-day averaging samples were collected, selenium concentrations were averaged to reflect one concentration at a station for a given event. In the upper Blackfoot watershed, at SLCTT002, BFDTT008, BFNTT009, BFUTT015, and SPRTT016, May 2002 selenium concentrations were greater than for all 2001 event concentrations. In May 2001 and May 2002, concentrations decreased from BFUTT015 to BFNTT009 and then increased slightly from BFNTT009 to BFDTT008. At stations sampled in the Salt and Bear River watersheds, May 2002 average concentrations were slightly greater than May 2001 concentrations but did not constitute the highest concentrations of all 2001 and 2002 monitoring events.

5.4.2 2001-2002 Selenium Loads

The selenium data discussed in the previous section and presented on Figure 7 were used to estimate selenium loads (grams per day) past each sampling site during each 4-day assessment period by multiplying the observed concentrations by the respective flow rate and converting units. Figure 8 presents observed 2001 and 2002 selenium loads at all 2002 monitoring stations where both selenium and flow data were collected. During both years, the highest selenium loads were observed at stations in the upper Blackfoot River watershed. Observed selenium concentrations at some monitoring stations translate to negligible selenium loads during the sampling period relative to the magnitude of selenium loads observed in the upper Blackfoot River watershed. May 2002 selenium loads at SPRTT016, BFUTT015, BFNTT009, and BFDTT008 were greater than May 2001 selenium loads. In May 2001 and May 2002, selenium loads increased between stations SPRTT0016 and BFUTT015, then decreased at BFNTT009, and again increased at BFDTT008.

FIGURE 7

OBSERVED SELENIUM CONCENTRATIONS AT 2001 AND 2002 MONITORING STATIONS

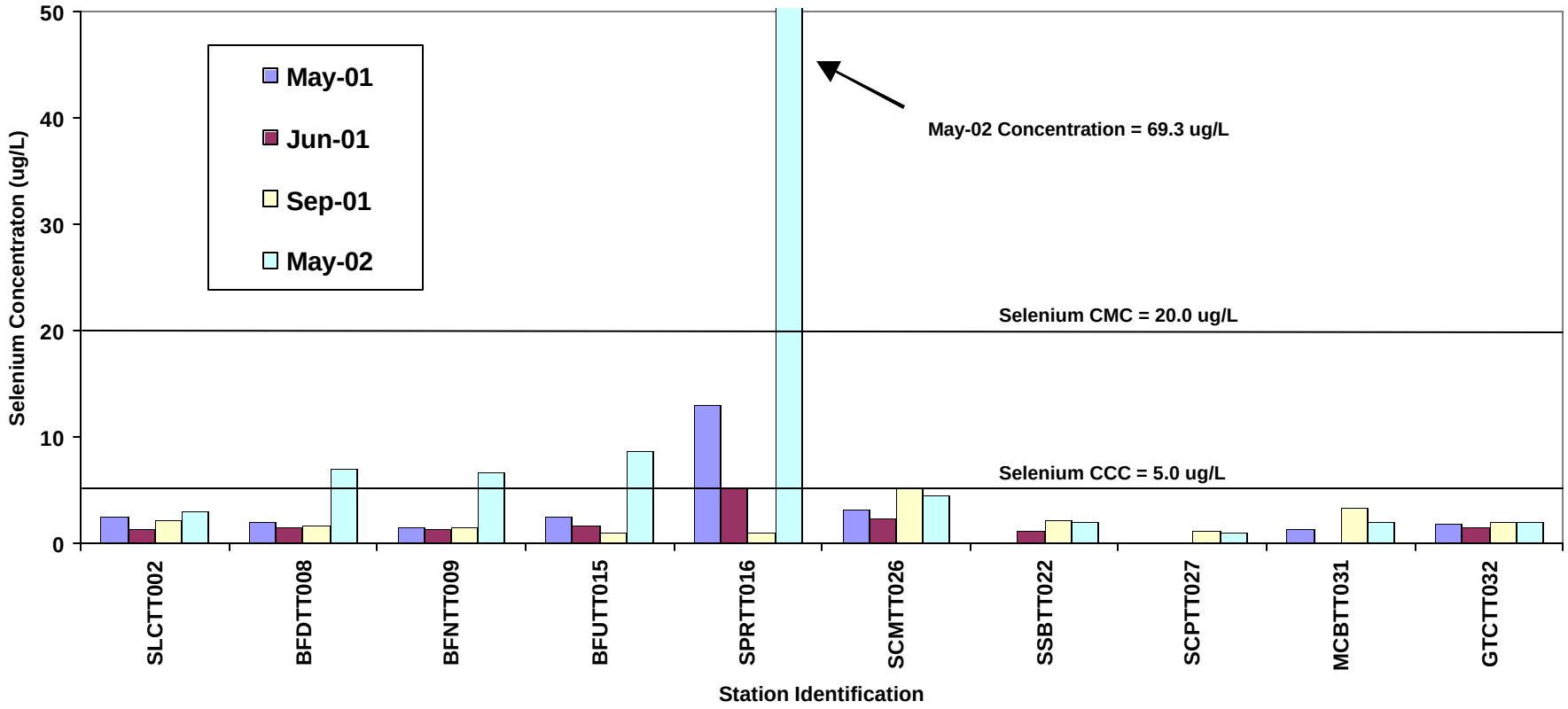

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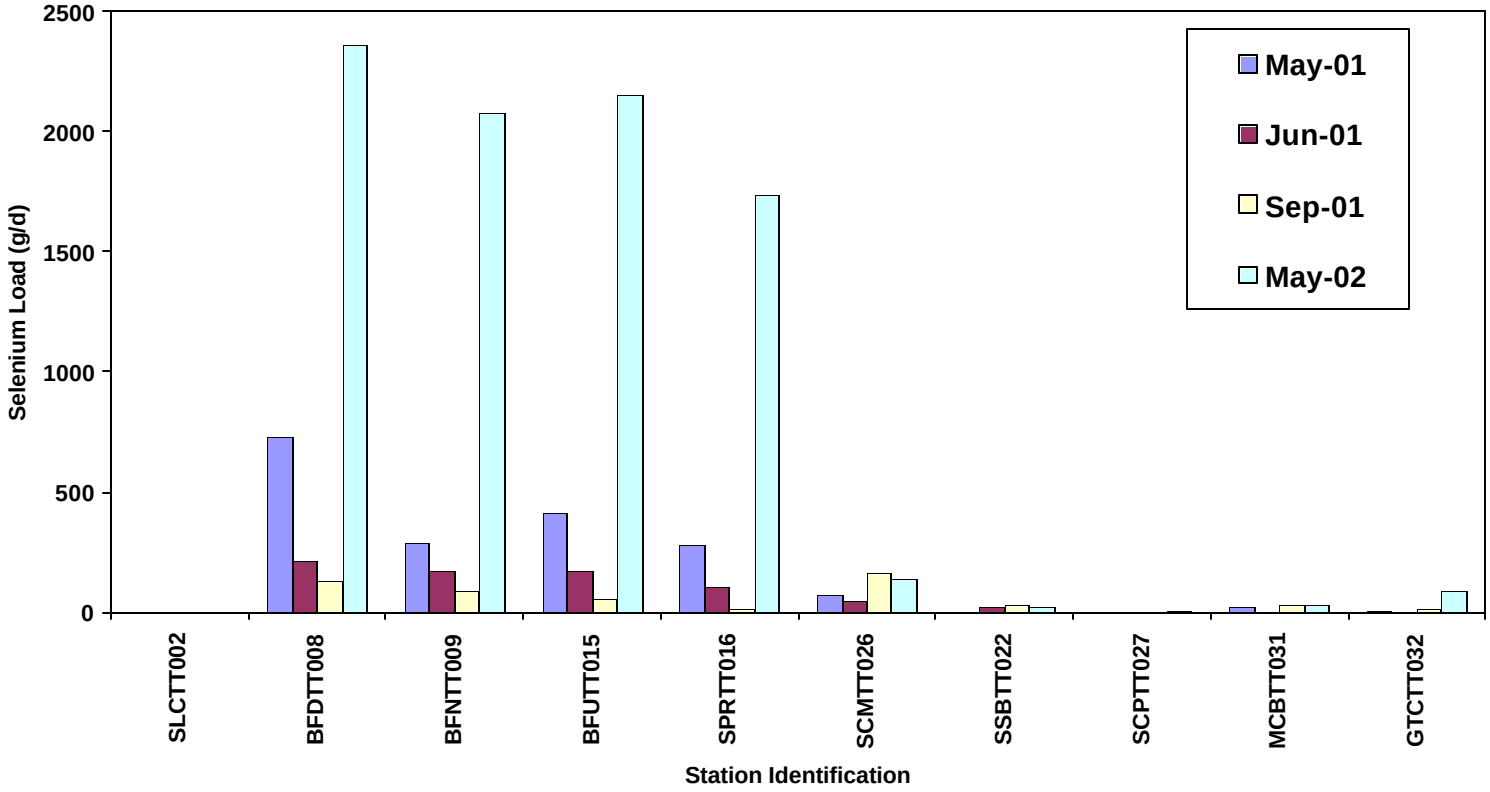
FIGURE 8

OBSERVED SELENIUM LOADS AT 2001 AND 2002 MONITORING STATIONS



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Based on observed data, it is fair to deduce that the observed differences in selenium loading observed in 2001 and 2002 from station-to-station or year-to-year may be due to natural and ongoing processes such as in-stream mobilization or demobilization processes, nonpoint source contributions of selenium from shallow groundwater discharge, or selenium input or dilutions accompanying unsampled tributary inflows. However, such deductions assume that the system over the course of the individual monitoring events in 2001 and 2002 was steady-state. This assumption is difficult to make in light of the possible influence of natural system heterogeneity, potential sampling or analytical errors, sampling design artifacts, flow diversions, or rainfall and runoff processes. Because of this, potentials for making statistical inference of selenium loading to streams in Resource Area using the existing data are constrained. Better understanding of selenium loading as well as selenium sources, pathways, and variables influencing its bioavailability will come with further data collection and assessment.

6.0 EVALUATION OF 1998-2002 SELENIUM DATA IN RELATION TO CONCURRENT CLIMATIC CONDITIONS

Based on surface water selenium data collected since 1998, the greatest selenium concentrations in Resource Area streams have been observed in May during the late spring to early summer snowmelt season. At the NRCS SNOTEL station at Emigrant Summit, Idaho, April 10 is the date of the maximum daily average SWEQ (26.9 inches) for the period of record (WY 1971 to WY 2000). This date can be assumed to best represent when the onset of snowmelt occurs. The amount of snowmelt runoff released is directly related to the amount of water stored in the accumulated snowpack from the preceding winter. This section integrates surface water selenium data collected by MW and TtEMI since 1998 and relates it to concurrent climatic conditions for the Resource Area. Emphasis is placed on data corresponding to two locations in the upper Blackfoot River watershed sampled by both MW and TtEMI-IDEQ from 1998 to 2002. (Climatic conditions are discussed in terms of SWEQ in Section 3.0.)

Laboratory-reported selenium concentrations in samples collected by MW from 15 monitoring stations in May 1998 or May 1999 exceeded Idaho regulatory criteria (TtEMI 2002a). Six of those stations were in close proximity to stations sampled by TtEMI and IDEQ in 2001. May 1998 and May 1999 selenium concentrations were greater than May 2001 concentrations at all six corresponding station locations (TtEMI 2002a). In addition, selenium results in May 2001 exceeded regulatory criteria at only two of the six station locations also sampled in May 1998 or May 1999. The lower selenium concentrations in May 2001 relative to May 1998 and May 1999 were attributed to low stream flows associated with below-normal precipitation conditions during Winter and Spring 2001 (TtEMI 2002a). The increase in selenium concentrations and loads in May 2002 relative to May 2001 may also be attributed to differences in annual precipitation conditions in the Resource Area.

Data from two locations within the upper Blackfoot watershed, sampled in May of every year since 1998 or 1999, were evaluated and related to SWEQ reported for the respective sample dates. One location is the Blackfoot River below Dry Valley Creek, where TtEMI station BFDTT008 is near MW station ST023. The other location is at the mouth of Spring Creek, where TtEMI station SPRTT016 is near MW station ST145. ST023 and ST145 are shown on Figure 1. MW collected samples from ST023 in May 1998, May 1999, and May 2000. MW collected samples from ST145 in May 1999 and May 2000. TtEMI collected samples from BFDTT008 and SPRTT016 in May 2001 and May 2002. These selenium data result from sampling procedures and laboratory analyses completed using QA/QC plans approved for each study. The SWEQ data come from the NRCS for the SNOTEL station at Emigrant Summit, Idaho.

The selenium concentrations and SWEQ depths for the May sample dates at BFDTT008/ST023 and SPRTT016/ST145 from 1998 or 1999, respectively, are shown on Figures 9 and 10, respectively. Both figures are double Y-axis graphs. Daily average SWEQ reported by NRCS for April 10 and May 15 are also plotted on the figures to demonstrate the relative degree of water in the snowpack associated with the sample date. Both figures indicate that May selenium concentrations are greater when there is a greater SWEQ at the time of sampling. This relationship may explain why the May 2002 selenium concentrations and loads exceeded those for May 2001 at monitoring stations in the upper Blackfoot River watershed.

Scatter plots were used to further examine the potential relationship between selenium concentrations and SWEQ depths at the two locations (Figures 11 and 12). Percent of normal SWEQ was calculated by dividing the observed SWEQ reported by NRCS for a sample date by the daily average SWEQ for the same date for the WY-1971 to WY-2000 period of record. These data were plotted with the selenium concentrations in the May samples collected from BFDTT008/ST023 and SPRTT016/ST145, respectively, since 1998 or 1999. Both figures present the least square line and r^2 coefficient of determination based on results of linear regression analysis.

On both Figures 11 and 12, selenium concentrations generally increase with increased SWEQ at the time of sample collection. The regression analysis indicates that percent of normal SWEQ is associated with i.e., "explains," 55 percent of the variation in these selenium concentration data from the Blackfoot River downstream of Dry Valley Creek. Similarly, percent of normal SWEQ explains 46 percent of the variation in these selenium concentration data at the mouth of Spring Creek. The sample sizes for these regressions are very small, however, which limit the statistical power available for these analyses. Neither linear regression results in statistically significant correlations at the 0.05 P-level. Nevertheless, the fact that both regressions indicate that approximately 50 percent of the variability in selenium concentrations detected were associated with the variability in SWEQ adds meaningful support to the hypothesis that that the volume of available snowmelt water drives the stream concentrations of selenium in the Spring. Additional investigation will be necessary for determining whether this relationship truly has a cause and effect relationship or whether they both are co-varying in response to some other independent variable.

The 4- to 5-year record of selenium data for Resource Area streams covers a wide range of climatic conditions. As discussed in Section 3.0, ACPR and SWEQ were relatively close to average in WY 1998 and 1999 and were below average in WY 2000, 2001, and 2002. For the streams investigated to date

within the Blackfoot River watershed, the highest overall selenium concentrations occurred in 1998 and 1999. Based on available data, and assuming that the hypothesized relationship is correct regarding the dependency of stream selenium concentrations on SWEQ, the May selenium concentrations in 1998 and 1999 may be most representative of selenium concentrations associated with snowmelt following an average snow year (see Figure 3). The validity of this conclusion should become clearer as more data are collected during studies designed specifically to advance the understanding of the relationships among selenium dissolution, entrainment, and transport from watershed land surfaces to streams.

FIGURE 9
OBSERVED MAY SELENIUM CONCENTRATION AND SAMPLE DATE SNOW WATER EQUIVALENT
BFDTT008/ST023--BLACKFOOT RIVER BELOW DRY VALLEY CREEK
MAY 1998 TO MAY 2002

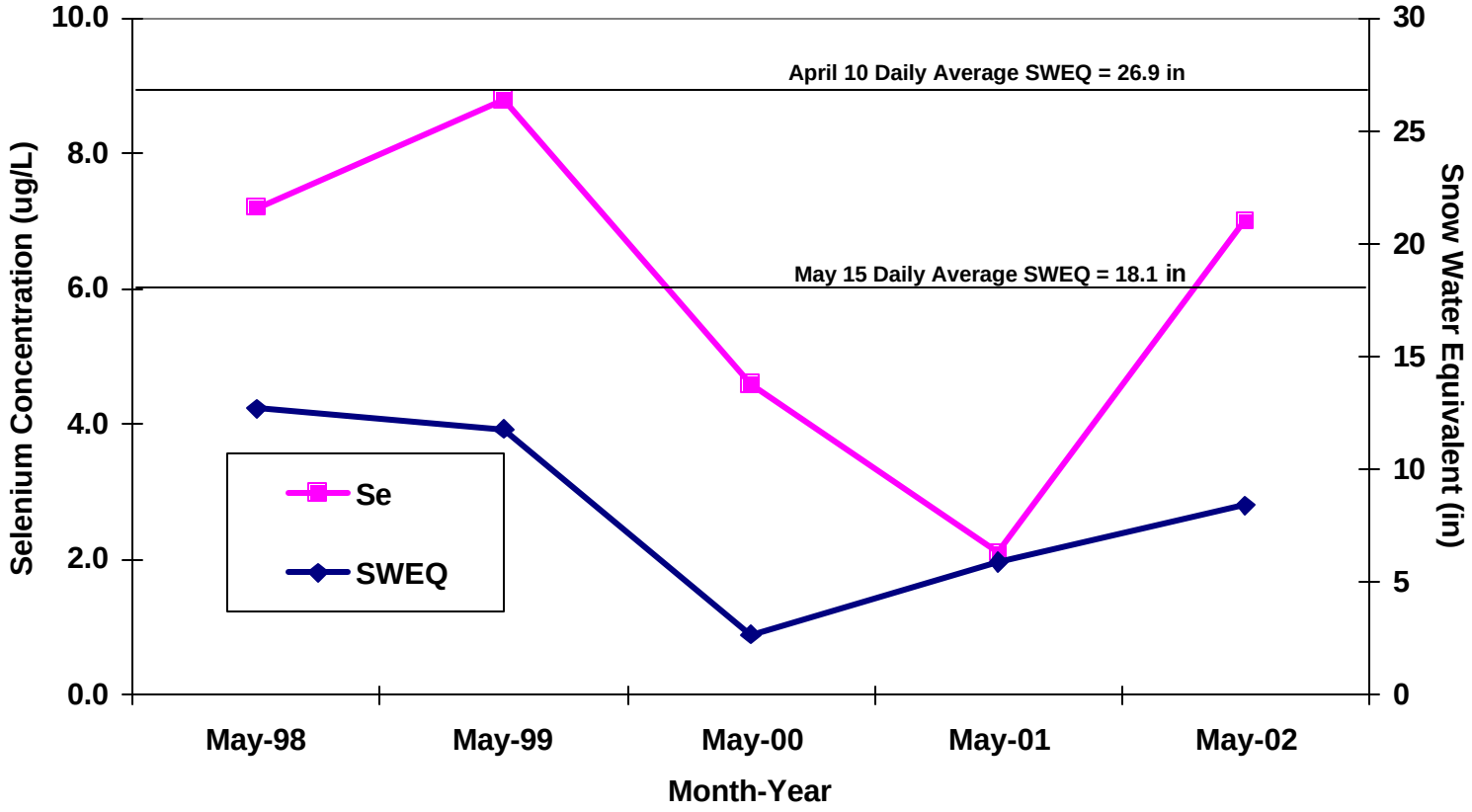

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FIGURE 10
OBSERVED MAY SELENIUM CONCENTRATION AND SAMPLE DATE SNOW WATER EQUIVALENT
SPRTT016/ST145--SPRING CREEK (MOUTH)
MAY 1999 TO MAY 2002

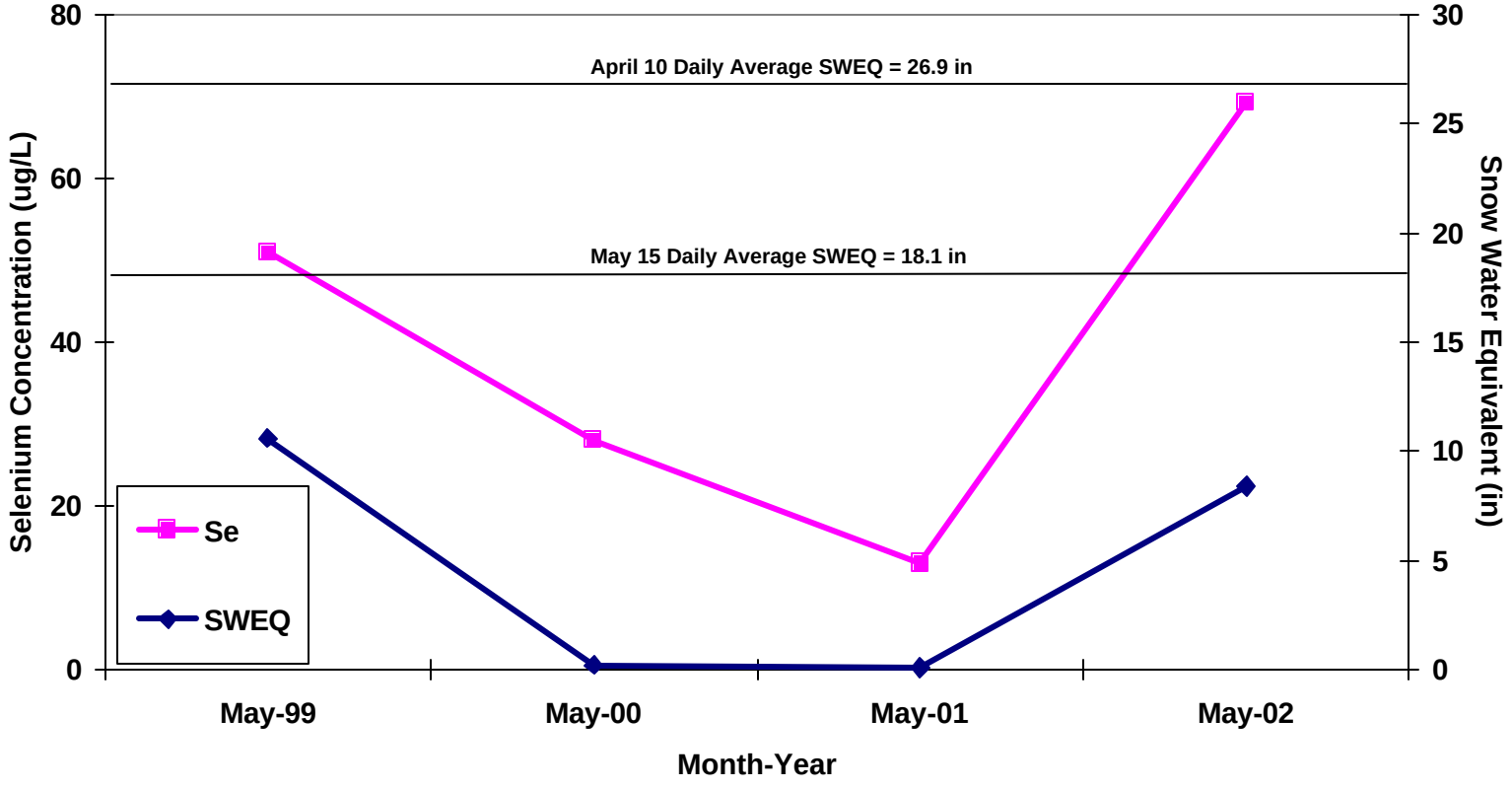

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FIGURE 11
OBSERVED MAY SELENIUM CONCENTRATIONS AND SAMPLE DATE
PERCENT OF NORMAL SNOW WATER EQUIVALENT
BFDTT008/ST023--BLACKFOOT RIVER BELOW DRY VALLEY CREEK
MAY 1998 TO MAY 2002

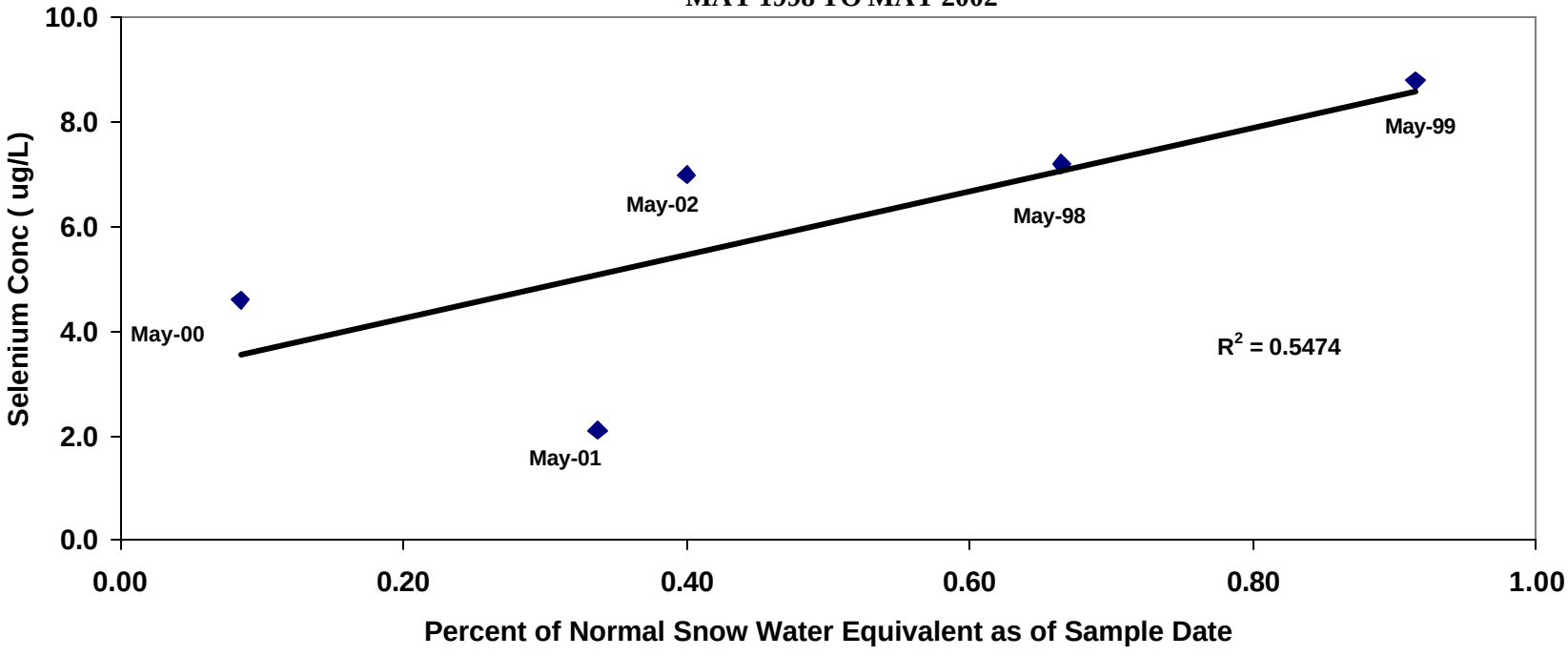

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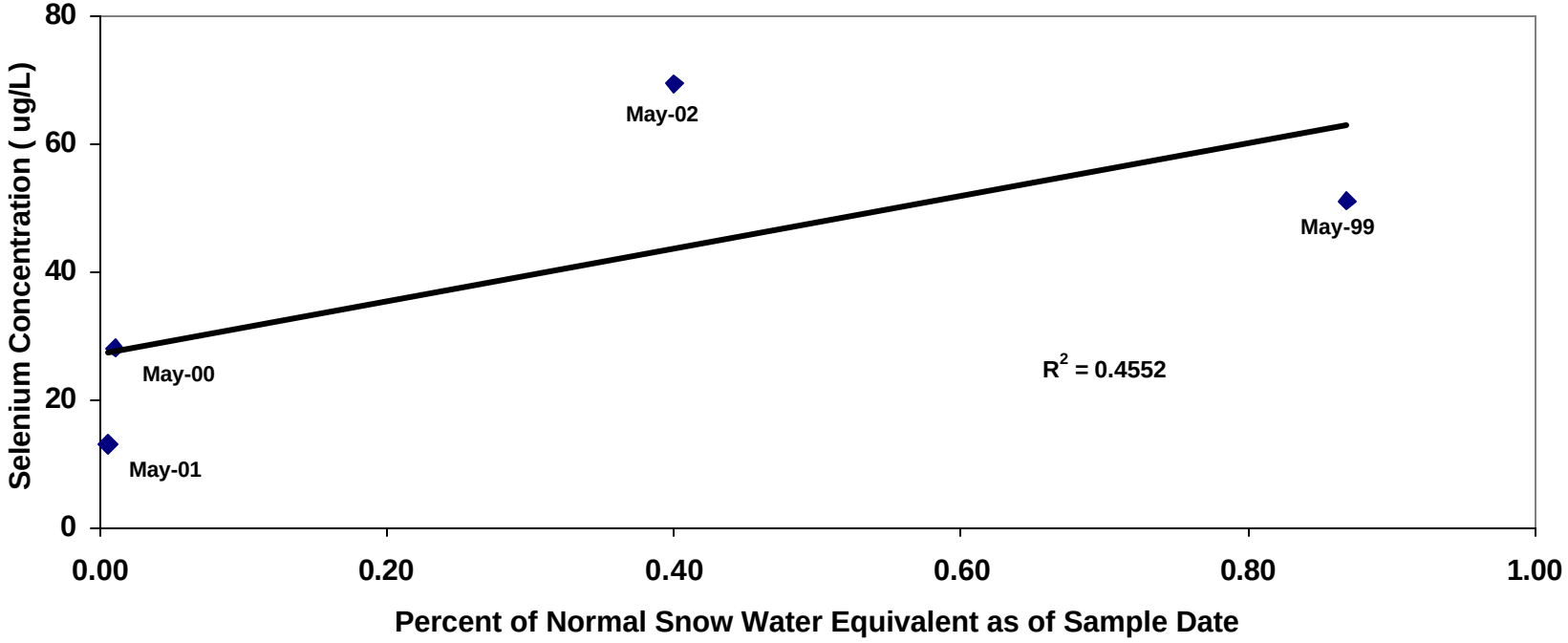
FIGURE 12
OBSERVED MAY SELENIUM CONCENTRATION AND SAMPLE DATE
PERCENT OF NORMAL SNOW WATER EQUIVALENT
SPRTT016/ST145--SPRING CREEK (MOUTH)
MAY 1999 TO MAY 2002



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7.0 SUMMARY

This report supplements TtEMI's "Final 2001 TMDL Baseline Monitoring Report" (TtEMI 2002a). In May 2002, surface water samples were collected at 10 stations within the upper Blackfoot River, Salt River, and Bear River watersheds in the Resource Area. The 10 stations were located on streams where selenium concentrations have been observed to exceed criteria levels established to protect aquatic life. At eight of the 10 stations, samples were collected following 4-day averaging protocol to support regulatory data needs of IDEQ. At monitoring stations Blackfoot River below Dry Valley Creek (BFDTT008), Blackfoot River below Narrows (BFNTT009), Blackfoot River at upper bridge (BFUTT015), and Spring Creek (mouth) (SPRTT016), 4-day averaged selenium concentrations exceeded the State of Idaho CCC. At SPRTT016, selenium concentrations exceeded the State of Idaho CMC.

At two locations within the upper Blackfoot River watershed where 2001 and 2002 TtEMI monitoring stations overlap closely with stations sampled by MW in 1998 and 1999, selenium concentrations observed in May of sample years were related to SWEQ at the time of sampling. Results of the evaluation suggest that surface water selenium concentrations are directly related to SWEQ. The highest observed May selenium concentrations, which occurred in May 1998 and May 1999, were associated with the highest SWEQ and percent of normal SWEQ. With WY 1998 and 1999 SWEQ and ACPR being the closest to average over the last five years, the May 1998 and May 1999 levels of selenium observed in Resource Area streams may be most representative of selenium concentrations associated with snowmelt following an average snow year.

This report provides critical information to IDEQ in documenting streams where beneficial uses for aquatic life may be impaired by selenium. IDEQ may use results of 2001 and 2002 baseline monitoring as justification for placing the assessed streams on the State of Idaho 2002 303(d) list. This report also develops new information in developing a hypothesized relationship between snowpack water content and in-stream selenium concentrations during the Spring. However, protection of beneficial uses and development of TMDLs by IDEQ for selenium-impacted streams require a better understanding of which streams are impacted, what levels of selenium are considered "safe" for chronic and acute exposure by aquatic life, the degree to which selenium is influenced by climatic variability, and the overall sources and pathways of selenium in Resource Area streams. Future data collection as part of more specialized studies is necessary to resolve these issues and to give IDEQ the information it needs to protect and manage its resources effectively.

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APPENDIX A

SURFACE WATER LABORATORY RESULTS

ON 3.5-INCH DISKETTE
STORED IN POCKET LOCATED ON BACK, INSIDE COVER OF BINDER

2002 SUPPLEMENT TO 2001 TMDL BASELINE MONITORING REPORT
APPENDIX A--SURFACE WATER LABORATORY RESULTS
LABORATORY DATA REPORTED BY ACZ LABORATORIES, INC.

SAMPLE ID	ANALYTE	MDL	RESULT	QC FLAG	UNITS	SAMPLE TYPE
SW050702BFDTT008-101	HARDNESS AS CACO3	1	177		MG/L	FO
SW050702BFDTT008-101	RESIDUE, NON-FILTERABLE (TSS)	5	8	B	MG/L	FO
SW050702BFDTT008-101	CARBON, TOTAL ORGANIC (TOC)	1	6		MG/L	FO
SW050702BFDTT008-101	SELENIUM, TOTAL	0.001	0.005	B	MG/L	FO
SW050702BFDTT008-101	NITRATE/NITRITE AS N	0.02	0.04	B	MG/L	FO
SW050702BFDTT008-101	BICARBONATE AS CACO3	2	173		MG/L	FO
SW050702BFDTT008-101	CARBONATE AS CACO3	2		U	MG/L	FO
SW050702BFDTT008-101	HYDROXIDE AS CACO3	2		U	MG/L	FO
SW050702BFDTT008-101	TOTAL ALKALINITY	2	173		MG/L	FO
SW050702BFDTT008-101	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050702BFDTT008-101	CHROMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050702BFDTT008-101	COPPER, DISSOLVED	0.0005	0.0005	B	MG/L	FO
SW050702BFDTT008-101	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050702BFDTT008-101	NICKEL, DISSOLVED	0.0002	0.001		MG/L	FO
SW050702BFDTT008-101	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW050702BFDTT008-101	CALCIUM, DISSOLVED	0.2	54.3		MG/L	FO
SW050702BFDTT008-101	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050702BFDTT008-101	MAGNESIUM, DISSOLVED	0.2	10		MG/L	FO
SW050702BFDTT008-101	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050702BFDTT008-101	PHOSPHORUS, TOTAL	0.01	0.03	B	MG/L	FO
SW050702BFNTT009-101	HARDNESS AS CACO3	1	169		MG/L	FO
SW050702BFNTT009-101	RESIDUE, NON-FILTERABLE (TSS)	5	16	B	MG/L	FO
SW050702BFNTT009-101	CARBON, TOTAL ORGANIC (TOC)	1	5		MG/L	FO
SW050702BFNTT009-101	BICARBONATE AS CACO3	2	109		MG/L	FO
SW050702BFNTT009-101	CARBONATE AS CACO3	2		U	MG/L	FO
SW050702BFNTT009-101	HYDROXIDE AS CACO3	2		U	MG/L	FO
SW050702BFNTT009-101	TOTAL ALKALINITY	2	109		MG/L	FO
SW050702BFNTT009-101	NITRATE/NITRITE AS N	0.02		U	MG/L	FO
SW050702BFNTT009-101	SELENIUM, TOTAL	0.001	0.006		MG/L	FO
SW050702BFNTT009-101	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050702BFNTT009-101	CHROMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050702BFNTT009-101	COPPER, DISSOLVED	0.0005	0.0005	B	MG/L	FO
SW050702BFNTT009-101	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050702BFNTT009-101	NICKEL, DISSOLVED	0.0002	0.001		MG/L	FO
SW050702BFNTT009-101	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW050702BFNTT009-101	CALCIUM, DISSOLVED	0.2	51.8		MG/L	FO
SW050702BFNTT009-101	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050702BFNTT009-101	MAGNESIUM, DISSOLVED	0.2	9.5		MG/L	FO
SW050702BFNTT009-101	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050702BFNTT009-101	PHOSPHORUS, TOTAL	0.01	0.03	B	MG/L	FO
SW050702BFNTT009-201	HARDNESS AS CACO3	1	173		MG/L	DUP
SW050702BFNTT009-201	RESIDUE, NON-FILTERABLE (TSS)	5	18	B	MG/L	DUP
SW050702BFNTT009-201	CARBON, TOTAL ORGANIC (TOC)	1	5		MG/L	DUP
SW050702BFNTT009-201	BICARBONATE AS CACO3	2	135		MG/L	DUP
SW050702BFNTT009-201	CARBONATE AS CACO3	2		U	MG/L	DUP
SW050702BFNTT009-201	HYDROXIDE AS CACO3	2		U	MG/L	DUP
SW050702BFNTT009-201	TOTAL ALKALINITY	2	135		MG/L	DUP
SW050702BFNTT009-201	NITRATE/NITRITE AS N	0.02	0.1		MG/L	DUP
SW050702BFNTT009-201	SELENIUM, TOTAL	0.001	0.006		MG/L	DUP
SW050702BFNTT009-201	CADMIUM, DISSOLVED	0.0001		U	MG/L	DUP

SW050702BFNTT009-201	CHROMIUM, DISSOLVED	0.0001		U	MG/L	DUP
SW050702BFNTT009-201	COPPER, DISSOLVED	0.0005	0.0006	B	MG/L	DUP
SW050702BFNTT009-201	LEAD, DISSOLVED	0.0001		U	MG/L	DUP
SW050702BFNTT009-201	NICKEL, DISSOLVED	0.0002	0.001	B	MG/L	DUP
SW050702BFNTT009-201	SILVER, DISSOLVED	0.00005		U	MG/L	DUP
SW050702BFNTT009-201	CALCIUM, DISSOLVED	0.2	53.4		MG/L	DUP
SW050702BFNTT009-201	COBALT, DISSOLVED	0.01		U	MG/L	DUP
SW050702BFNTT009-201	MAGNESIUM, DISSOLVED	0.2	9.7		MG/L	DUP
SW050702BFNTT009-201	ZINC, DISSOLVED	0.01		U	MG/L	DUP
SW050702BFNTT009-201	PHOSPHORUS, TOTAL	0.01	0.04	B	MG/L	DUP
SW050702BFUTT015-101	HARDNESS AS CACO3	1	176		MG/L	FO
SW050702BFUTT015-101	RESIDUE, NON-FILTERABLE (TSS)	5	30		MG/L	FO
SW050702BFUTT015-101	CARBON, TOTAL ORGANIC (TOC)	1	5	B	MG/L	FO
SW050702BFUTT015-101	BICARBONATE AS CACO3	2	136		MG/L	FO
SW050702BFUTT015-101	CARBONATE AS CACO3	2		U	MG/L	FO
SW050702BFUTT015-101	HYDROXIDE AS CACO3	2		U	MG/L	FO
SW050702BFUTT015-101	TOTAL ALKALINITY	2	136		MG/L	FO
SW050702BFUTT015-101	NITRATE/NITRITE AS N	0.02	0.05	B	MG/L	FO
SW050702BFUTT015-101	SELENIUM, TOTAL	0.001	0.007		MG/L	FO
SW050702BFUTT015-101	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050702BFUTT015-101	CHROMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050702BFUTT015-101	COPPER, DISSOLVED	0.0005	0.0006	B	MG/L	FO
SW050702BFUTT015-101	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050702BFUTT015-101	NICKEL, DISSOLVED	0.0002	0.001	B	MG/L	FO
SW050702BFUTT015-101	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW050702BFUTT015-101	CALCIUM, DISSOLVED	0.2	54.2		MG/L	FO
SW050702BFUTT015-101	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050702BFUTT015-101	MAGNESIUM, DISSOLVED	0.2	9.8		MG/L	FO
SW050702BFUTT015-101	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050702BFUTT015-101	PHOSPHORUS, TOTAL	0.03	0.03	B	MG/L	FO
DW-050702-Y1-101	HARDNESS AS CACO3	1	1	B	MG/L	SWB
DW-050702-Y1-101	RESIDUE, NON-FILTERABLE (TSS)	5	10	B	MG/L	SWB
DW-050702-Y1-101	CARBON, TOTAL ORGANIC (TOC)	1	1	B	MG/L	SWB
DW-050702-Y1-101	BICARBONATE AS CACO3	2	3	B	MG/L	SWB
DW-050702-Y1-101	CARBONATE AS CACO3	2		U	MG/L	SWB
DW-050702-Y1-101	HYDROXIDE AS CACO3	2		U	MG/L	SWB
DW-050702-Y1-101	TOTAL ALKALINITY	2	3	B	MG/L	SWB
DW-050702-Y1-101	NITRATE/NITRITE AS N	0.02		U	MG/L	SWB
DW-050702-Y1-101	SELENIUM, TOTAL	0.001		U	MG/L	SWB
DW-050702-Y1-101	CHROMIUM, DISSOLVED	0.0001		U	MG/L	SWB
DW-050702-Y1-101	COPPER, DISSOLVED	0.0005		U	MG/L	SWB
DW-050702-Y1-101	NICKEL, DISSOLVED	0.0002	0.0002	B	MG/L	SWB
DW-050702-Y1-101	COBALT, DISSOLVED	0.01		U	MG/L	SWB
DW-050702-Y1-101	PHOSPHORUS, TOTAL	0.01		U	MG/L	SWB
DW-050702-Y1-101	CADMIUM, DISSOLVED	0.0001		U	MG/L	SWB
DW-050702-Y1-101	LEAD, DISSOLVED	0.0001		U	MG/L	SWB
DW-050702-Y1-101	SILVER, DISSOLVED	0.00005		U	MG/L	SWB
DW-050702-Y1-101	MAGNESIUM, DISSOLVED	0.2		U	MG/L	SWB
DW-050702-Y1-101	ZINC, DISSOLVED	0.01		U	MG/L	SWB
DW-050702-Y1-101	CALCIUM, DISSOLVED	0.2	0.2	B	MG/L	SWB
DW-050702-X1-101	HARDNESS AS CACO3	1	n/a		MG/L	ER
DW-050702-X1-101	RESIDUE, NON-FILTERABLE (TSS)	5	6	B	MG/L	ER
DW-050702-X1-101	CARBON, TOTAL ORGANIC (TOC)	1		U	MG/L	ER
DW-050702-X1-101	BICARBONATE AS CACO3	2	3	B	MG/L	ER
DW-050702-X1-101	CARBONATE AS CACO3	2		U	MG/L	ER

DW-050702-X1-101	HYDROXIDE AS CACO3	2		U	MG/L	ER
DW-050702-X1-101	TOTAL ALKALINITY	2	3	B	MG/L	ER
DW-050702-X1-101	NITRATE/NITRITE AS N	0.02		U	MG/L	ER
DW-050702-X1-101	SELENIUM, TOTAL	0.001		U	MG/L	ER
DW-050702-X1-101	CHROMIUM, DISSOLVED	0.0001		U	MG/L	ER
DW-050702-X1-101	COPPER, DISSOLVED	0.0005	0.0005	B	MG/L	ER
DW-050702-X1-101	NICKEL, DISSOLVED	0.0002	0.0005	B	MG/L	ER
DW-050702-X1-101	COBALT, DISSOLVED	0.01		U	MG/L	ER
DW-050702-X1-101	ZINC, DISSOLVED	0.01		U	MG/L	ER
DW-050702-X1-101	PHOSPHORUS, TOTAL	0.01		U	MG/L	ER
DW-050702-X1-101	CADMIUM, DISSOLVED	0.0001		U	MG/L	ER
DW-050702-X1-101	LEAD, DISSOLVED	0.0001		U	MG/L	ER
DW-050702-X1-101	SILVER, DISSOLVED	0.00005		U	MG/L	ER
DW-050702-X1-101	MAGNESIUM, DISSOLVED	0.2		U	MG/L	ER
DW-050702-X1-101	CALCIUM, DISSOLVED	0.2		U	MG/L	ER
SW-050702SCMTT026-101	HARDNESS AS CACO3	1	225		MG/L	FO
SW-050702SCMTT026-101	RESIDUE, NON-FILTERABLE (TSS)	5	14	B	MG/L	FO
SW-050702SCMTT026-101	CARBON, TOTAL ORGANIC (TOC)	1	3	B	MG/L	FO
SW-050702SCMTT026-101	SELENIUM, TOTAL	0.001	0.003	B	MG/L	FO
SW-050702SCMTT026-101	BICARBONATE AS CACO3	2	147		MG/L	FO
SW-050702SCMTT026-101	CARBONATE AS CACO3	2		U	MG/L	FO
SW-050702SCMTT026-101	HYDROXIDE AS CACO3	2		U	MG/L	FO
SW-050702SCMTT026-101	TOTAL ALKALINITY	2	147		MG/L	FO
SW-050702SCMTT026-101	NITRATE/NITRITE AS N	0.02	0.02	B	MG/L	FO
SW-050702SCMTT026-101	CALCIUM, DISSOLVED	0.2	57.9		MG/L	FO
SW-050702SCMTT026-101	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW-050702SCMTT026-101	MAGNESIUM, DISSOLVED	0.2	19.6		MG/L	FO
SW-050702SCMTT026-101	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW-050702SCMTT026-101	PHOSPHORUS, TOTAL	0.01	0.01	B	MG/L	FO
SW-050702SCMTT026-101	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW-050702SCMTT026-101	CHROMIUM, DISSOLVED	0.0001	0.0004	B	MG/L	FO
SW-050702SCMTT026-101	COPPER, DISSOLVED	0.0005		U	MG/L	FO
SW-050702SCMTT026-101	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW-050702SCMTT026-101	NICKEL, DISSOLVED	0.0002	0.0009	B	MG/L	FO
SW-050702SCMTT026-101	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW050702MCBTT031-101	HARDNESS AS CACO3	1	303		MG/L	FO
SW050702MCBTT031-101	RESIDUE, NON-FILTERABLE (TSS)	5	8	B	MG/L	FO
SW050702MCBTT031-101	CARBON, TOTAL ORGANIC (TOC)	1	4	B	MG/L	FO
SW050702MCBTT031-101	SELENIUM, TOTAL	0.001	0.002	B	MG/L	FO
SW050702MCBTT031-101	BICARBONATE AS CACO3	2	151		MG/L	FO
SW050702MCBTT031-101	CARBONATE AS CACO3	2		U	MG/L	FO
SW050702MCBTT031-101	HYDROXIDE AS CACO3	2		U	MG/L	FO
SW050702MCBTT031-101	TOTAL ALKALINITY	2	151		MG/L	FO
SW050702MCBTT031-101	NITRATE/NITRITE AS N	0.02	0.06	B	MG/L	FO
SW050702MCBTT031-101	CALCIUM, DISSOLVED	0.2	80.1		MG/L	FO
SW050702MCBTT031-101	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050702MCBTT031-101	MAGNESIUM, DISSOLVED	0.2	25.1		MG/L	FO
SW050702MCBTT031-101	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050702MCBTT031-101	PHOSPHORUS, TOTAL	0.01		U	MG/L	FO
SW050702MCBTT031-101	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050702MCBTT031-101	CHROMIUM, DISSOLVED	0.0001	0.0001	B	MG/L	FO
SW050702MCBTT031-101	COPPER, DISSOLVED	0.0005	0.0006	B	MG/L	FO
SW050702MCBTT031-101	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050702MCBTT031-101	NICKEL, DISSOLVED	0.0002	0.0014		MG/L	FO
SW050702MCBTT031-101	SILVER, DISSOLVED	0.00005		U	MG/L	FO

SW050702GTCTT032-101	HARDNESS AS CACO3	1	209		MG/L	FO
SW050702GTCTT032-101	RESIDUE, NON-FILTERABLE (TSS)	5	12	B	MG/L	FO
SW050702GTCTT032-101	CARBON, TOTAL ORGANIC (TOC)	1	3	B	MG/L	FO
SW050702GTCTT032-101	SELENIUM, TOTAL	0.001	0.002	B	MG/L	FO
SW050702GTCTT032-101	BICARBONATE AS CACO3	2	139		MG/L	FO
SW050702GTCTT032-101	CARBONATE AS CACO3	2	5	B	MG/L	FO
SW050702GTCTT032-101	HYDROXIDE AS CACO3	2		U	MG/L	FO
SW050702GTCTT032-101	TOTAL ALKALINITY	2	144		MG/L	FO
SW050702GTCTT032-101	NITRATE/NITRITE AS N	0.02	0.14		MG/L	FO
SW050702GTCTT032-101	CALCIUM, DISSOLVED	0.2	57.2		MG/L	FO
SW050702GTCTT032-101	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050702GTCTT032-101	MAGNESIUM, DISSOLVED	0.2	16.1		MG/L	FO
SW050702GTCTT032-101	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050702GTCTT032-101	PHOSPHORUS, TOTAL	0.01	0.02	B	MG/L	FO
SW050702GTCTT032-101	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050702GTCTT032-101	CHROMIUM, DISSOLVED	0.0001	0.0006		MG/L	FO
SW050702GTCTT032-101	COPPER, DISSOLVED	0.0005		U	MG/L	FO
SW050702GTCTT032-101	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050702GTCTT032-101	NICKEL, DISSOLVED	0.0002	0.0012		MG/L	FO
SW050702GTCTT032-101	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW050702SCPTT027-101	HARDNESS AS CACO3	1	218		MG/L	FO
SW050702SCPTT027-101	RESIDUE, NON-FILTERABLE (TSS)	5	8	B	MG/L	FO
SW050702SCPTT027-101	CARBON, TOTAL ORGANIC (TOC)	1	5		MG/L	FO
SW050702SCPTT027-101	SELENIUM, TOTAL	0.001	0.001	B	MG/L	FO
SW050702SCPTT027-101	BICARBONATE AS CACO3	2	145		MG/L	FO
SW050702SCPTT027-101	CARBONATE AS CACO3	2	8	B	MG/L	FO
SW050702SCPTT027-101	HYDROXIDE AS CACO3	2		U	MG/L	FO
SW050702SCPTT027-101	TOTAL ALKALINITY	2	153		MG/L	FO
SW050702SCPTT027-101	NITRATE/NITRITE AS N	0.02	0.03	B	MG/L	FO
SW050702SCPTT027-101	CALCIUM, DISSOLVED	0.2	63.5		MG/L	FO
SW050702SCPTT027-101	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050702SCPTT027-101	MAGNESIUM, DISSOLVED	0.2	14.5		MG/L	FO
SW050702SCPTT027-101	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050702SCPTT027-101	PHOSPHORUS, TOTAL	0.01		U	MG/L	FO
SW050702SCPTT027-101	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050702SCPTT027-101	CHROMIUM, DISSOLVED	0.0001	0.0002	B	MG/L	FO
SW050702SCPTT027-101	COPPER, DISSOLVED	0.0005	0.0005	B	MG/L	FO
SW050702SCPTT027-101	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050702SCPTT027-101	NICKEL, DISSOLVED	0.0002	0.0013		MG/L	FO
SW050702SCPTT027-101	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW050902BFDTT008-201	HARDNESS AS CACO3	1	187		MG/L	FO
SW050902BFDTT008-201	SELENIUM, TOTAL	0.001	0.008		MG/L	FO
SW050902BFDTT008-201	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050902BFDTT008-201	CHROMIUM, DISSOLVED	0.0001	0.0002	B	MG/L	FO
SW050902BFDTT008-201	COPPER, DISSOLVED	0.0005	0.0006	B	MG/L	FO
SW050902BFDTT008-201	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050902BFDTT008-201	NICKEL, DISSOLVED	0.0002	0.001		MG/L	FO
SW050902BFDTT008-201	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW050902BFDTT008-201	CALCIUM, DISSOLVED	0.2	57.1		MG/L	FO
SW050902BFDTT008-201	MAGNESIUM, DISSOLVED	0.2	10.7		MG/L	FO
SW050902BFDTT008-201	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050902BFDTT008-201	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050802BFNTT009-301	HARDNESS AS CACO3	1	180		MG/L	FO
SW050802BFNTT009-301	SELENIUM, TOTAL	0.001	0.008		MG/L	FO
SW050802BFNTT009-301	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO

SW050802BFNTT009-301	CHROMIUM, DISSOLVED	0.0001	0.0001	B	MG/L	FO
SW050802BFNTT009-301	COPPER, DISSOLVED	0.0005	0.0008	B	MG/L	FO
SW050802BFNTT009-301	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050802BFNTT009-301	NICKEL, DISSOLVED	0.0002	0.0009	B	MG/L	FO
SW050802BFNTT009-301	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW050802BFNTT009-301	CALCIUM, DISSOLVED	0.2	55.4		MG/L	FO
SW050802BFNTT009-301	MAGNESIUM, DISSOLVED	0.2	10.2		MG/L	FO
SW050802BFNTT009-301	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050802BFNTT009-301	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050802SPRTT016-101	HARDNESS AS CACO3	1	203		MG/L	FO
SW050802SPRTT016-101	RESIDUE, NON-FILTERABLE (TSS)	5	10	B	MG/L	FO
SW050802SPRTT016-101	CARBON, TOTAL ORGANIC (TOC)	1	3	B	MG/L	FO
SW050802SPRTT016-101	NITRATE/NITRITE AS N	0.02	0.11		MG/L	FO
SW050802SPRTT016-101	BICARBONATE AS CACO3	2	141		MG/L	FO
SW050802SPRTT016-101	CARBONATE AS CACO3	2		U	MG/L	FO
SW050802SPRTT016-101	HYDROXIDE AS CACO3	2		U	MG/L	FO
SW050802SPRTT016-101	TOTAL ALKALINITY	2	141		MG/L	FO
SW050802SPRTT016-101	SELENIUM, TOTAL	0.002	0.072		MG/L	FO
SW050802SPRTT016-101	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050802SPRTT016-101	CHROMIUM, DISSOLVED	0.0001	0.0003	B	MG/L	FO
SW050802SPRTT016-101	COPPER, DISSOLVED	0.0005	0.0006	B	MG/L	FO
SW050802SPRTT016-101	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050802SPRTT016-101	NICKEL, DISSOLVED	0.0002	0.0009	B	MG/L	FO
SW050802SPRTT016-101	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW050802SPRTT016-101	PHOSPHORUS, TOTAL	0.01	0.01	B	MG/L	FO
SW050802SPRTT016-101	CALCIUM, DISSOLVED	0.2	60.4		MG/L	FO
SW050802SPRTT016-101	MAGNESIUM, DISSOLVED	0.2	12.6		MG/L	FO
SW050802SPRTT016-101	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050802SPRTT016-101	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050902BFNTT009-401	HARDNESS AS CACO3	1	181		MG/L	FO
SW050902BFNTT009-401	SELENIUM, TOTAL	0.001	0.007		MG/L	FO
SW050902BFNTT009-401	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050902BFNTT009-401	CHROMIUM, DISSOLVED	0.0001	0.0001	B	MG/L	FO
SW050902BFNTT009-401	COPPER, DISSOLVED	0.0005	0.0008	B	MG/L	FO
SW050902BFNTT009-401	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050902BFNTT009-401	NICKEL, DISSOLVED	0.0002	0.001		MG/L	FO
SW050902BFNTT009-401	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW050902BFNTT009-401	CALCIUM, DISSOLVED	0.2	55.8		MG/L	FO
SW050902BFNTT009-401	MAGNESIUM, DISSOLVED	0.2	10.2		MG/L	FO
SW050902BFNTT009-401	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050902BFNTT009-401	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050802BFUTT015-201	HARDNESS AS CACO3	1	183		MG/L	FO
SW050802BFUTT015-201	SELENIUM, TOTAL	0.001	0.009		MG/L	FO
SW050802BFUTT015-201	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050802BFUTT015-201	CHROMIUM, DISSOLVED	0.0001	0.0002	B	MG/L	FO
SW050802BFUTT015-201	COPPER, DISSOLVED	0.0005	0.0006	B	MG/L	FO
SW050802BFUTT015-201	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050802BFUTT015-201	NICKEL, DISSOLVED	0.0002	0.001		MG/L	FO
SW050802BFUTT015-201	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW050802BFUTT015-201	CALCIUM, DISSOLVED	0.2	56.1		MG/L	FO
SW050802BFUTT015-201	MAGNESIUM, DISSOLVED	0.2	10.3		MG/L	FO
SW050802BFUTT015-201	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050802BFUTT015-201	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050902BFUTT015-301	HARDNESS AS CACO3	1	184		MG/L	FO
SW050902BFUTT015-301	SELENIUM, TOTAL	0.001	0.01		MG/L	FO

SW050902BFUTT015-301	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050902BFUTT015-301	CHROMIUM, DISSOLVED	0.0001	0.0001	B	MG/L	FO
SW050902BFUTT015-301	COPPER, DISSOLVED	0.0005	0.0007	B	MG/L	FO
SW050902BFUTT015-301	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050902BFUTT015-301	NICKEL, DISSOLVED	0.0002	0.001		MG/L	FO
SW050902BFUTT015-301	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW050902BFUTT015-301	CALCIUM, DISSOLVED	0.2	56.5		MG/L	FO
SW050902BFUTT015-301	MAGNESIUM, DISSOLVED	0.2	10.4		MG/L	FO
SW050902BFUTT015-301	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050902BFUTT015-301	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050902SPRTT016-201	HARDNESS AS CACO3	1	192		MG/L	FO
SW050902SPRTT016-201	SELENIUM, TOTAL	0.002	0.068		MG/L	FO
SW050902SPRTT016-201	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050902SPRTT016-201	CALCIUM, DISSOLVED	0.2	57		MG/L	FO
SW050902SPRTT016-201	MAGNESIUM, DISSOLVED	0.2	12.1		MG/L	FO
SW050902SPRTT016-201	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050902SPRTT016-201	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050902SPRTT016-201	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050902SPRTT016-201	CHROMIUM, DISSOLVED	0.0001	0.0003	B	MG/L	FO
SW050902SPRTT016-201	COPPER, DISSOLVED	0.0005	0.0041		MG/L	FO
SW050902SPRTT016-201	NICKEL, DISSOLVED	0.0002	0.0006	B	MG/L	FO
SW050902SPRTT016-201	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW050902SSBTT022-101	HARDNESS AS CACO3	1	219		MG/L	FO
SW050902SSBTT022-101	RESIDUE, NON-FILTERABLE (TSS)	5	10	B	MG/L	FO
SW050902SSBTT022-101	CARBON, TOTAL ORGANIC (TOC)	1	3	B	MG/L	FO
SW050902SSBTT022-101	NITRATE/NITRITE AS N	0.02	0.13		MG/L	FO
SW050902SSBTT022-101	BICARBONATE AS CACO3	2	202		MG/L	FO
SW050902SSBTT022-101	CARBONATE AS CACO3	2		U	MG/L	FO
SW050902SSBTT022-101	HYDROXIDE AS CACO3	2		U	MG/L	FO
SW050902SSBTT022-101	TOTAL ALKALINITY	2	202		MG/L	FO
SW050902SSBTT022-101	SELENIUM, TOTAL	0.001	0.002	B	MG/L	FO
SW050902SSBTT022-101	PHOSPHORUS, TOTAL	0.01		U	MG/L	FO
SW050902SSBTT022-101	COPPER, DISSOLVED	0.0005		U	MG/L	FO
SW050902SSBTT022-101	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050902SSBTT022-101	CALCIUM, DISSOLVED	0.2	52.6		MG/L	FO
SW050902SSBTT022-101	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050902SSBTT022-101	MAGNESIUM, DISSOLVED	0.2	21.4		MG/L	FO
SW050902SSBTT022-101	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050902SSBTT022-101	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050902SSBTT022-101	CHROMIUM, DISSOLVED	0.0001	0.0005		MG/L	FO
SW050902SSBTT022-101	NICKEL, DISSOLVED	0.0002	0.0006	B	MG/L	FO
SW050902SSBTT022-101	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW050902SCMTT026-201	HARDNESS AS CACO3	1	224		MG/L	FO
SW050902SCMTT026-201	SELENIUM, TOTAL	0.001	0.005		MG/L	FO
SW050902SCMTT026-201	COPPER, DISSOLVED	0.0005		U	MG/L	FO
SW050902SCMTT026-201	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050902SCMTT026-201	CALCIUM, DISSOLVED	0.2	54.9		MG/L	FO
SW050902SCMTT026-201	MAGNESIUM, DISSOLVED	0.2	21.1		MG/L	FO
SW050902SCMTT026-201	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050902SCMTT026-201	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050902SCMTT026-201	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050902SCMTT026-201	CHROMIUM, DISSOLVED	0.0001	0.0004	B	MG/L	FO
SW050902SCMTT026-201	NICKEL, DISSOLVED	0.0002	0.0005	B	MG/L	FO
SW050902SCMTT026-201	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW050902SCMTT026-301	HARDNESS AS CACO3	1	222		MG/L	DUP

SW050902SCMTT026-301	SELENIUM, TOTAL	0.001	0.005	B	MG/L	DUP
SW050902SCMTT026-301	COPPER, DISSOLVED	0.0005		U	MG/L	DUP
SW050902SCMTT026-301	LEAD, DISSOLVED	0.0001		U	MG/L	DUP
SW050902SCMTT026-301	CALCIUM, DISSOLVED	0.2	54.3		MG/L	DUP
SW050902SCMTT026-301	MAGNESIUM, DISSOLVED	0.2	21.1		MG/L	DUP
SW050902SCMTT026-301	COBALT, DISSOLVED	0.01		U	MG/L	DUP
SW050902SCMTT026-301	ZINC, DISSOLVED	0.01		U	MG/L	DUP
SW050902SCMTT026-301	CADMIUM, DISSOLVED	0.0001		U	MG/L	DUP
SW050902SCMTT026-301	CHROMIUM, DISSOLVED	0.0001	0.0004	B	MG/L	DUP
SW050902SCMTT026-301	NICKEL, DISSOLVED	0.0002	0.0005	B	MG/L	DUP
SW050902SCMTT026-301	SILVER, DISSOLVED	0.00005		U	MG/L	DUP
SW050902SCPTT027-201	HARDNESS AS CACO3	1	245		MG/L	FO
SW050902SCPTT027-201	SELENIUM, TOTAL	0.001	0.001	B	MG/L	FO
SW050902SCPTT027-201	COPPER, DISSOLVED	0.0005		U	MG/L	FO
SW050902SCPTT027-201	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050902SCPTT027-201	CALCIUM, DISSOLVED	0.2	71.8		MG/L	FO
SW050902SCPTT027-201	MAGNESIUM, DISSOLVED	0.2	15.9		MG/L	FO
SW050902SCPTT027-201	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050902SCPTT027-201	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050902SCPTT027-201	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050902SCPTT027-201	CHROMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050902SCPTT027-201	NICKEL, DISSOLVED	0.0002	0.0007	B	MG/L	FO
SW050902SCPTT027-201	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW050902MCBTT031-201	HARDNESS AS CACO3	1	311		MG/L	FO
SW050902MCBTT031-201	SELENIUM, TOTAL	0.001	0.002	B	MG/L	FO
SW050902MCBTT031-201	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050902MCBTT031-201	CALCIUM, DISSOLVED	0.2	81.2		MG/L	FO
SW050902MCBTT031-201	MAGNESIUM, DISSOLVED	0.2	26.3		MG/L	FO
SW050902MCBTT031-201	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050902MCBTT031-201	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050902MCBTT031-201	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050902MCBTT031-201	CHROMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050902MCBTT031-201	COPPER, DISSOLVED	0.0005	0.0005	B	MG/L	FO
SW050902MCBTT031-201	NICKEL, DISSOLVED	0.0002	0.0008	B	MG/L	FO
SW050902MCBTT031-201	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW050902GTCTT032-201	HARDNESS AS CACO3	1	216		MG/L	FO
SW050902GTCTT032-201	SELENIUM, TOTAL	0.001	0.002	B	MG/L	FO
SW050902GTCTT032-201	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW050902GTCTT032-201	CALCIUM, DISSOLVED	0.2	58.2		MG/L	FO
SW050902GTCTT032-201	MAGNESIUM, DISSOLVED	0.2	17.1		MG/L	FO
SW050902GTCTT032-201	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW050902GTCTT032-201	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW050902GTCTT032-201	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW050902GTCTT032-201	CHROMIUM, DISSOLVED	0.0001	0.0005	B	MG/L	FO
SW050902GTCTT032-201	COPPER, DISSOLVED	0.0005	0.0015	B	MG/L	FO
SW050902GTCTT032-201	NICKEL, DISSOLVED	0.0002	0.0006	B	MG/L	FO
SW050902GTCTT032-201	SILVER, DISSOLVED	0.00005		U	MG/L	FO
DW-050902-X1-201	HARDNESS AS CACO3	1	2	B	MG/L	ER
DW-050902-X1-201	SELENIUM, TOTAL	0.001		U	MG/L	ER
DW-050902-X1-201	LEAD, DISSOLVED	0.0001		U	MG/L	ER
DW-050902-X1-201	CALCIUM, DISSOLVED	0.2	0.6	B	MG/L	ER
DW-050902-X1-201	MAGNESIUM, DISSOLVED	0.2		U	MG/L	ER
DW-050902-X1-201	COBALT, DISSOLVED	0.01		U	MG/L	ER
DW-050902-X1-201	ZINC, DISSOLVED	0.01		U	MG/L	ER
DW-050902-X1-201	CADMIUM, DISSOLVED	0.0001		U	MG/L	ER

DW-050902-X1-201	CHROMIUM, DISSOLVED	0.0001		U	MG/L	ER
DW-050902-X1-201	COPPER, DISSOLVED	0.0005		U	MG/L	ER
DW-050902-X1-201	NICKEL, DISSOLVED	0.0002	0.0004	B	MG/L	ER
DW-050902-X1-201	SILVER, DISSOLVED	0.00005		U	MG/L	ER
SW051002BFDTT008-301	HARDNESS AS CACO3	1	194		MG/L	FO
SW051002BFDTT008-301	SELENIUM, TOTAL	0.001	0.008		MG/L	FO
SW051002BFDTT008-301	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW051002BFDTT008-301	CALCIUM, DISSOLVED	0.2	60		MG/L	FO
SW051002BFDTT008-301	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW051002BFDTT008-301	MAGNESIUM, DISSOLVED	0.2	10.8		MG/L	FO
SW051002BFDTT008-301	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW051002BFDTT008-301	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW051002BFDTT008-301	CHROMIUM, DISSOLVED	0.0001	0.0001	B	MG/L	FO
SW051002BFDTT008-301	COPPER, DISSOLVED	0.0005	0.0009	B	MG/L	FO
SW051002BFDTT008-301	NICKEL, DISSOLVED	0.0002	0.0008	B	MG/L	FO
SW051002BFDTT008-301	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW051002SPRTT016-301	HARDNESS AS CACO3	1	212		MG/L	FO
SW051002SPRTT016-301	SELENIUM, TOTAL	0.002	0.068		MG/L	FO
SW051002SPRTT016-301	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW051002SPRTT016-301	CALCIUM, DISSOLVED	0.2	63.9		MG/L	FO
SW051002SPRTT016-301	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW051002SPRTT016-301	MAGNESIUM, DISSOLVED	0.2	12.8		MG/L	FO
SW051002SPRTT016-301	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW051002SPRTT016-301	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW051002SPRTT016-301	CHROMIUM, DISSOLVED	0.0001	0.0024		MG/L	FO
SW051002SPRTT016-301	COPPER, DISSOLVED	0.0005	0.0007	B	MG/L	FO
SW051002SPRTT016-301	NICKEL, DISSOLVED	0.0002	0.0008	B	MG/L	FO
SW051002SPRTT016-301	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW051002SCMTT026-401	HARDNESS AS CACO3	1	240		MG/L	FO
SW051002SCMTT026-401	SELENIUM, TOTAL	0.001	0.005	B	MG/L	FO
SW051002SCMTT026-401	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW051002SCMTT026-401	CALCIUM, DISSOLVED	0.2	59.9		MG/L	FO
SW051002SCMTT026-401	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW051002SCMTT026-401	MAGNESIUM, DISSOLVED	0.2	22		MG/L	FO
SW051002SCMTT026-401	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW051002SCMTT026-401	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW051002SCMTT026-401	CHROMIUM, DISSOLVED	0.0001	0.0004	B	MG/L	FO
SW051002SCMTT026-401	COPPER, DISSOLVED	0.0005		U	MG/L	FO
SW051002SCMTT026-401	NICKEL, DISSOLVED	0.0002	0.0006	B	MG/L	FO
SW051002SCMTT026-401	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW051002SCPTT027-301	HARDNESS AS CACO3	1	276		MG/L	FO
SW051002SCPTT027-301	SELENIUM, TOTAL	0.001	0.001	B	MG/L	FO
SW051002SCPTT027-301	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW051002SCPTT027-301	CALCIUM, DISSOLVED	0.2	83		MG/L	FO
SW051002SCPTT027-301	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW051002SCPTT027-301	MAGNESIUM, DISSOLVED	0.2	16.6		MG/L	FO
SW051002SCPTT027-301	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW051002SCPTT027-301	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW051002SCPTT027-301	CHROMIUM, DISSOLVED	0.0001	0.0001	B	MG/L	FO
SW051002SCPTT027-301	COPPER, DISSOLVED	0.0005	0.0005	B	MG/L	FO
SW051002SCPTT027-301	NICKEL, DISSOLVED	0.0002	0.0008	B	MG/L	FO
SW051002SCPTT027-301	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW051002MCBTT031-301	HARDNESS AS CACO3	1	324		MG/L	FO
SW051002MCBTT031-301	SELENIUM, TOTAL	0.001	0.002	B	MG/L	FO
SW051002MCBTT031-301	LEAD, DISSOLVED	0.0001		U	MG/L	FO

SW051002MCBTT031-301	CALCIUM, DISSOLVED	0.2	85.6		MG/L	FO
SW051002MCBTT031-301	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW051002MCBTT031-301	MAGNESIUM, DISSOLVED	0.2	26.8		MG/L	FO
SW051002MCBTT031-301	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW051002MCBTT031-301	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW051002MCBTT031-301	CHROMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW051002MCBTT031-301	COPPER, DISSOLVED	0.0005	0.0006	B	MG/L	FO
SW051002MCBTT031-301	NICKEL, DISSOLVED	0.0002	0.0007	B	MG/L	FO
SW051002MCBTT031-301	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW051002GTCTT032-301	HARDNESS AS CACO3	1	238		MG/L	FO
SW051002GTCTT032-301	SELENIUM, TOTAL	0.001	0.002	B	MG/L	FO
SW051002GTCTT032-301	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW051002GTCTT032-301	CALCIUM, DISSOLVED	0.2	64.8		MG/L	FO
SW051002GTCTT032-301	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW051002GTCTT032-301	MAGNESIUM, DISSOLVED	0.2	18.5		MG/L	FO
SW051002GTCTT032-301	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW051002GTCTT032-301	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW051002GTCTT032-301	CHROMIUM, DISSOLVED	0.0001	0.0004	B	MG/L	FO
SW051002GTCTT032-301	COPPER, DISSOLVED	0.0005		U	MG/L	FO
SW051002GTCTT032-301	NICKEL, DISSOLVED	0.0002	0.0006	B	MG/L	FO
SW051002GTCTT032-301	SILVER, DISSOLVED	0.00005		U	MG/L	FO
SW051002GTCTT032-401	HARDNESS AS CACO3	1	237		MG/L	DUP
SW051002GTCTT032-401	SELENIUM, TOTAL	0.001	0.002	B	MG/L	DUP
SW051002GTCTT032-401	LEAD, DISSOLVED	0.0001		U	MG/L	DUP
SW051002GTCTT032-401	CALCIUM, DISSOLVED	0.2	64.5		MG/L	DUP
SW051002GTCTT032-401	COBALT, DISSOLVED	0.01		U	MG/L	DUP
SW051002GTCTT032-401	MAGNESIUM, DISSOLVED	0.2	18.4		MG/L	DUP
SW051002GTCTT032-401	ZINC, DISSOLVED	0.01		U	MG/L	DUP
SW051002GTCTT032-401	CADMIUM, DISSOLVED	0.0001		U	MG/L	DUP
SW051002GTCTT032-401	CHROMIUM, DISSOLVED	0.0001	0.0004	B	MG/L	DUP
SW051002GTCTT032-401	COPPER, DISSOLVED	0.0005		U	MG/L	DUP
SW051002GTCTT032-401	NICKEL, DISSOLVED	0.0002	0.0006	B	MG/L	DUP
SW051002GTCTT032-401	SILVER, DISSOLVED	0.00005		U	MG/L	DUP
SW051002SLCTT002-101	HARDNESS AS CACO3	1	181		MG/L	FO
SW051002SLCTT002-101	CARBON, TOTAL ORGANIC (TOC)	1	6		MG/L	FO
SW051002SLCTT002-101	RESIDUE, NON-FILTERABLE (TSS)	5		U	MG/L	FO
SW051002SLCTT002-101	BICARBONATE AS CACO3	2	115		MG/L	FO
SW051002SLCTT002-101	CARBONATE AS CACO3	2		U	MG/L	FO
SW051002SLCTT002-101	HYDROXIDE AS CACO3	2		U	MG/L	FO
SW051002SLCTT002-101	TOTAL ALKALINITY	2	115		MG/L	FO
SW051002SLCTT002-101	NITRATE/NITRITE AS N	0.02		U	MG/L	FO
SW051002SLCTT002-101	PHOSPHORUS, TOTAL	0.01	0.06		MG/L	FO
SW051002SLCTT002-101	SELENIUM, TOTAL	0.001	0.003	B	MG/L	FO
SW051002SLCTT002-101	LEAD, DISSOLVED	0.0001		U	MG/L	FO
SW051002SLCTT002-101	CALCIUM, DISSOLVED	0.2	52.5		MG/L	FO
SW051002SLCTT002-101	COBALT, DISSOLVED	0.01		U	MG/L	FO
SW051002SLCTT002-101	MAGNESIUM, DISSOLVED	0.2	12.1		MG/L	FO
SW051002SLCTT002-101	ZINC, DISSOLVED	0.01		U	MG/L	FO
SW051002SLCTT002-101	CADMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW051002SLCTT002-101	CHROMIUM, DISSOLVED	0.0001		U	MG/L	FO
SW051002SLCTT002-101	COPPER, DISSOLVED	0.0005	0.0018	B	MG/L	FO
SW051002SLCTT002-101	NICKEL, DISSOLVED	0.0002	0.0013		MG/L	FO
SW051002SLCTT002-101	SILVER, DISSOLVED	0.00005		U	MG/L	FO

APPENDIX B

SURFACE WATER FIELD PARAMETER AND FLOW RESULTS

ON 3.5-INCH DISKETTE

STORED IN POCKET LOCATED ON BACK, INSIDE COVER OF BINDER

2002 SUPPLEMENT TO 2001 TMDL BASELINE MONITORING REPORT
APPENDIX B
SURFACE WATER FIELD PARAMETER DATA

STATION	SAMPLE ID	FIELD PARAMETER	OBSERVATION #	RESULT	UNITS
SLCTT002	SW-051102-SLCTT002-101	TEMP	1	7.18	deg C
SLCTT002	SW-051102-SLCTT002-101	pH	1	8.23	
SLCTT002	SW-051102-SLCTT002-101	SC	1	229	uS/cm
SLCTT002	SW-051102-SLCTT002-101	TURB	1	2.1	NTU
SLCTT002	SW-051102-SLCTT002-101	DO	1	10.19	mg/L
SLCTT002	SW-051102-SLCTT002-101	ORP	1	200	mV
BFDTT008	SW-050702-BFDTT008-101	TEMP	1	8.49	deg C
BFDTT008	SW-050702-BFDTT008-101	TEMP	2	8.49	deg C
BFDTT008	SW-050702-BFDTT008-101	TEMP	3	8.49	deg C
BFDTT008	SW-050702-BFDTT008-101	pH	1	8.30	
BFDTT008	SW-050702-BFDTT008-101	pH	2	8.31	
BFDTT008	SW-050702-BFDTT008-101	pH	3	8.32	
BFDTT008	SW-050702-BFDTT008-101	SC	1	321	uS/cm
BFDTT008	SW-050702-BFDTT008-101	SC	2	321	uS/cm
BFDTT008	SW-050702-BFDTT008-101	SC	3	320	uS/cm
BFDTT008	SW-050702-BFDTT008-101	TURB	1	8.16	NTU
BFDTT008	SW-050702-BFDTT008-101	TURB	2	8.03	NTU
BFDTT008	SW-050702-BFDTT008-101	TURB	3	7.96	NTU
BFDTT008	SW-050702-BFDTT008-101	DO	1	8.43	mg/L
BFDTT008	SW-050702-BFDTT008-101	DO	2	8.34	mg/L
BFDTT008	SW-050702-BFDTT008-101	DO	3	8.31	mg/L
BFDTT008	SW-050702-BFDTT008-101	ORP	1	208	mV
BFDTT008	SW-050702-BFDTT008-101	ORP	2	209	mV
BFDTT008	SW-050702-BFDTT008-101	ORP	3	210	mV
BFDTT008	SW-050902-BFDTT008-201	TEMP	1	4.65	deg C
BFDTT008	SW-050902-BFDTT008-201	TEMP	2	4.68	deg C
BFDTT008	SW-050902-BFDTT008-201	TEMP	3	4.69	deg C
BFDTT008	SW-050902-BFDTT008-201	pH	1	8.32	
BFDTT008	SW-050902-BFDTT008-201	pH	2	8.33	
BFDTT008	SW-050902-BFDTT008-201	pH	3	8.33	
BFDTT008	SW-050902-BFDTT008-201	SC	1	332	uS/cm
BFDTT008	SW-050902-BFDTT008-201	SC	2	332	uS/cm
BFDTT008	SW-050902-BFDTT008-201	SC	3	331	uS/cm
BFDTT008	SW-050902-BFDTT008-201	TURB	1	7.5	NTU
BFDTT008	SW-050902-BFDTT008-201	TURB	2	7.3	NTU
BFDTT008	SW-050902-BFDTT008-201	TURB	3	7.5	NTU
BFDTT008	SW-050902-BFDTT008-201	DO	1	11.10	mg/L
BFDTT008	SW-050902-BFDTT008-201	DO	2	11.16	mg/L
BFDTT008	SW-050902-BFDTT008-201	DO	3	11.18	mg/L
BFDTT008	SW-050902-BFDTT008-201	ORP	1	97.2	mV
BFDTT008	SW-050902-BFDTT008-201	ORP	2	100	mV
BFDTT008	SW-050902-BFDTT008-201	ORP	3	101	mV
BFDTT008	SW-051002-BFDTT008-301	TEMP	1	5.96	deg C
BFDTT008	SW-051002-BFDTT008-301	TEMP	2	5.96	deg C
BFDTT008	SW-051002-BFDTT008-301	TEMP	3	5.95	deg C

BFDTT008	SW-051002-BFDTT008-301	pH	1	8.26	
BFDTT008	SW-051002-BFDTT008-301	pH	2	8.27	
BFDTT008	SW-051002-BFDTT008-301	pH	3	8.28	
BFDTT008	SW-051002-BFDTT008-301	SC	1	334	uS/cm
BFDTT008	SW-051002-BFDTT008-301	SC	2	334	uS/cm
BFDTT008	SW-051002-BFDTT008-301	SC	3	335	uS/cm
BFDTT008	SW-051002-BFDTT008-301	TURB	1	7.5	NTU
BFDTT008	SW-051002-BFDTT008-301	TURB	2	8.0	NTU
BFDTT008	SW-051002-BFDTT008-301	TURB	3	7.7	NTU
BFDTT008	SW-051002-BFDTT008-301	DO	1	10.58	mg/L
BFDTT008	SW-051002-BFDTT008-301	DO	2	10.57	mg/L
BFDTT008	SW-051002-BFDTT008-301	DO	3	10.52	mg/L
BFDTT008	SW-051002-BFDTT008-301	ORP	1	107	mV
BFDTT008	SW-051002-BFDTT008-301	ORP	2	106	mV
BFDTT008	SW-051002-BFDTT008-301	ORP	3	109	mV
BFNTT009	SW-050702-BFNTT009-101	TEMP	1	7.23	deg C
BFNTT009	SW-050702-BFNTT009-101	TEMP	2	7.23	deg C
BFNTT009	SW-050702-BFNTT009-101	TEMP	3	7.23	deg C
BFNTT009	SW-050702-BFNTT009-101	pH	1	8.42	
BFNTT009	SW-050702-BFNTT009-101	pH	2	8.42	
BFNTT009	SW-050702-BFNTT009-101	pH	3	8.40	
BFNTT009	SW-050702-BFNTT009-101	SC	1	315	uS/cm
BFNTT009	SW-050702-BFNTT009-101	SC	2	315	uS/cm
BFNTT009	SW-050702-BFNTT009-101	SC	3	315	uS/cm
BFNTT009	SW-050702-BFNTT009-101	TURB	1	8.7	NTU
BFNTT009	SW-050702-BFNTT009-101	TURB	2	8.7	NTU
BFNTT009	SW-050702-BFNTT009-101	TURB	3	8.8	NTU
BFNTT009	SW-050702-BFNTT009-101	DO	1	9.01	mg/L
BFNTT009	SW-050702-BFNTT009-101	DO	2	9.01	mg/L
BFNTT009	SW-050702-BFNTT009-101	DO	3	9.03	mg/L
BFNTT009	SW-050702-BFNTT009-101	ORP	1	260	mV
BFNTT009	SW-050702-BFNTT009-101	ORP	2	260	mV
BFNTT009	SW-050702-BFNTT009-101	ORP	3	260	mV
BFNTT009	SW-050802-BFNTT009-301	TEMP	1	5.86	deg C
BFNTT009	SW-050802-BFNTT009-301	TEMP	2	5.80	deg C
BFNTT009	SW-050802-BFNTT009-301	TEMP	3	5.80	deg C
BFNTT009	SW-050802-BFNTT009-301	pH	1	8.55	
BFNTT009	SW-050802-BFNTT009-301	pH	2	8.50	
BFNTT009	SW-050802-BFNTT009-301	pH	3	8.46	
BFNTT009	SW-050802-BFNTT009-301	SC	1	202	uS/cm
BFNTT009	SW-050802-BFNTT009-301	SC	2	202	uS/cm
BFNTT009	SW-050802-BFNTT009-301	SC	3	203	uS/cm
BFNTT009	SW-050802-BFNTT009-301	TURB	1	9.2	NTU
BFNTT009	SW-050802-BFNTT009-301	TURB	2	9.3	NTU
BFNTT009	SW-050802-BFNTT009-301	TURB	3	8.9	NTU
BFNTT009	SW-050802-BFNTT009-301	DO	1	13.50	mg/L
BFNTT009	SW-050802-BFNTT009-301	DO	2	13.40	mg/L
BFNTT009	SW-050802-BFNTT009-301	DO	3	13.30	mg/L
BFNTT009	SW-050802-BFNTT009-301	ORP	1	188	mV
BFNTT009	SW-050802-BFNTT009-301	ORP	2	190	mV

BFNTT009	SW-050802-BFNTT009-301	ORP	3	194	mV
BFNTT009	SW-050902-BFNTT009-401	TEMP	1	5.08	deg C
BFNTT009	SW-050902-BFNTT009-401	TEMP	2	5.10	deg C
BFNTT009	SW-050902-BFNTT009-401	TEMP	3	5.13	deg C
BFNTT009	SW-050902-BFNTT009-401	pH	1	8.46	
BFNTT009	SW-050902-BFNTT009-401	pH	2	8.46	
BFNTT009	SW-050902-BFNTT009-401	pH	3	8.46	
BFNTT009	SW-050902-BFNTT009-401	SC	1	327	uS/cm
BFNTT009	SW-050902-BFNTT009-401	SC	2	328	uS/cm
BFNTT009	SW-050902-BFNTT009-401	SC	3	328	uS/cm
BFNTT009	SW-050902-BFNTT009-401	TURB	1	5.9	NTU
BFNTT009	SW-050902-BFNTT009-401	TURB	2	5.9	NTU
BFNTT009	SW-050902-BFNTT009-401	TURB	3	5.9	NTU
BFNTT009	SW-050902-BFNTT009-401	DO	1	12.41	mg/L
BFNTT009	SW-050902-BFNTT009-401	DO	2	12.60	mg/L
BFNTT009	SW-050902-BFNTT009-401	DO	3	12.68	mg/L
BFNTT009	SW-050902-BFNTT009-401	ORP	1	128	mV
BFNTT009	SW-050902-BFNTT009-401	ORP	2	127	mV
BFNTT009	SW-050902-BFNTT009-401	ORP	3	127	mV
BFUTT015	SW-050702-BFUTT015-101	TEMP	1	6.78	deg C
BFUTT015	SW-050702-BFUTT015-101	TEMP	2	6.79	deg C
BFUTT015	SW-050702-BFUTT015-101	TEMP	3	6.78	deg C
BFUTT015	SW-050702-BFUTT015-101	pH	1	8.39	
BFUTT015	SW-050702-BFUTT015-101	pH	2	8.39	
BFUTT015	SW-050702-BFUTT015-101	pH	3	8.38	
BFUTT015	SW-050702-BFUTT015-101	SC	1	316	uS/cm
BFUTT015	SW-050702-BFUTT015-101	SC	2	316	uS/cm
BFUTT015	SW-050702-BFUTT015-101	SC	3	316	uS/cm
BFUTT015	SW-050702-BFUTT015-101	TURB	1	12.5	NTU
BFUTT015	SW-050702-BFUTT015-101	TURB	2	12.7	NTU
BFUTT015	SW-050702-BFUTT015-101	TURB	3	12.7	NTU
BFUTT015	SW-050702-BFUTT015-101	DO	1	8.50	mg/L
BFUTT015	SW-050702-BFUTT015-101	DO	2	8.50	mg/L
BFUTT015	SW-050702-BFUTT015-101	DO	3	8.51	mg/L
BFUTT015	SW-050702-BFUTT015-101	ORP	1	86.4	mV
BFUTT015	SW-050702-BFUTT015-101	ORP	2	90.6	mV
BFUTT015	SW-050702-BFUTT015-101	ORP	3	94.4	mV
BFUTT015	SW-050802-BFUTT015-201	TEMP	1	4.23	deg C
BFUTT015	SW-050802-BFUTT015-201	TEMP	2	4.23	deg C
BFUTT015	SW-050802-BFUTT015-201	TEMP	3	4.25	deg C
BFUTT015	SW-050802-BFUTT015-201	pH	1	8.28	
BFUTT015	SW-050802-BFUTT015-201	pH	2	8.18	
BFUTT015	SW-050802-BFUTT015-201	pH	3	8.20	
BFUTT015	SW-050802-BFUTT015-201	SC	1	198	uS/cm
BFUTT015	SW-050802-BFUTT015-201	SC	2	199	uS/cm
BFUTT015	SW-050802-BFUTT015-201	SC	3	199	uS/cm
BFUTT015	SW-050802-BFUTT015-201	TURB	1	11.2	NTU
BFUTT015	SW-050802-BFUTT015-201	TURB	2	12.0	NTU
BFUTT015	SW-050802-BFUTT015-201	TURB	3	12.0	NTU
BFUTT015	SW-050802-BFUTT015-201	DO	1	12.28	mg/L

BFUTT015	SW-050802-BFUTT015-201	DO	2	11.52	mg/L
BFUTT015	SW-050802-BFUTT015-201	DO	3	11.51	mg/L
BFUTT015	SW-050802-BFUTT015-201	ORP	1	181	mV
BFUTT015	SW-050802-BFUTT015-201	ORP	2	191	mV
BFUTT015	SW-050802-BFUTT015-201	ORP	3	193	mV
BFUTT015	SW-050902-BFUTT015-301	TEMP	1	6.94	deg C
BFUTT015	SW-050902-BFUTT015-301	TEMP	2	6.94	deg C
BFUTT015	SW-050902-BFUTT015-301	TEMP	3	6.96	deg C
BFUTT015	SW-050902-BFUTT015-301	pH	1	8.27	
BFUTT015	SW-050902-BFUTT015-301	pH	2	8.27	
BFUTT015	SW-050902-BFUTT015-301	pH	3	8.28	
BFUTT015	SW-050902-BFUTT015-301	SC	1	334	uS/cm
BFUTT015	SW-050902-BFUTT015-301	SC	2	334	uS/cm
BFUTT015	SW-050902-BFUTT015-301	SC	3	334	uS/cm
BFUTT015	SW-050902-BFUTT015-301	TURB	1	7.1	NTU
BFUTT015	SW-050902-BFUTT015-301	TURB	2	7.5	NTU
BFUTT015	SW-050902-BFUTT015-301	TURB	3	7.2	NTU
BFUTT015	SW-050902-BFUTT015-301	DO	1	12.00	mg/L
BFUTT015	SW-050902-BFUTT015-301	DO	2	12.02	mg/L
BFUTT015	SW-050902-BFUTT015-301	DO	3	11.99	mg/L
BFUTT015	SW-050902-BFUTT015-301	ORP	1	35.5	mV
BFUTT015	SW-050902-BFUTT015-301	ORP	2	37.5	mV
BFUTT015	SW-050902-BFUTT015-301	ORP	3	40.6	mV
SPRTT016	SW-050802-SPRTT016-101	TEMP	1	3.79	deg C
SPRTT016	SW-050802-SPRTT016-101	TEMP	2	3.73	deg C
SPRTT016	SW-050802-SPRTT016-101	TEMP	3	3.86	deg C
SPRTT016	SW-050802-SPRTT016-101	pH	1	8.17	
SPRTT016	SW-050802-SPRTT016-101	pH	2	8.18	
SPRTT016	SW-050802-SPRTT016-101	pH	3	8.18	
SPRTT016	SW-050802-SPRTT016-101	SC	1	214	uS/cm
SPRTT016	SW-050802-SPRTT016-101	SC	2	213	uS/cm
SPRTT016	SW-050802-SPRTT016-101	SC	3	215	uS/cm
SPRTT016	SW-050802-SPRTT016-101	TURB	1	1.5	NTU
SPRTT016	SW-050802-SPRTT016-101	DO	1	12.41	mg/L
SPRTT016	SW-050802-SPRTT016-101	DO	2	12.42	mg/L
SPRTT016	SW-050802-SPRTT016-101	DO	3	12.40	mg/L
SPRTT016	SW-050802-SPRTT016-101	ORP	1	199	mV
SPRTT016	SW-050802-SPRTT016-101	ORP	2	201	mV
SPRTT016	SW-050802-SPRTT016-101	ORP	3	201	mV
SPRTT016	SW-050902-SPRTT016-201	TEMP	1	10.48	deg C
SPRTT016	SW-050902-SPRTT016-201	TEMP	2	10.48	deg C
SPRTT016	SW-050902-SPRTT016-201	TEMP	3	10.43	deg C
SPRTT016	SW-050902-SPRTT016-201	pH	1	8.57	
SPRTT016	SW-050902-SPRTT016-201	pH	2	8.57	
SPRTT016	SW-050902-SPRTT016-201	pH	3	8.56	
SPRTT016	SW-050902-SPRTT016-201	SC	1	252	uS/cm
SPRTT016	SW-050902-SPRTT016-201	SC	2	252	uS/cm
SPRTT016	SW-050902-SPRTT016-201	SC	3	253	uS/cm
SPRTT016	SW-050902-SPRTT016-201	TURB	1	1.0	NTU
SPRTT016	SW-050902-SPRTT016-201	TURB	2	1.0	NTU

SPRTT016	SW-050902-SPRTT016-201	TURB	3	1.0	NTU
SPRTT016	SW-050902-SPRTT016-201	DO	1	12.88	mg/L
SPRTT016	SW-050902-SPRTT016-201	DO	2	12.77	mg/L
SPRTT016	SW-050902-SPRTT016-201	DO	3	12.58	mg/L
SPRTT016	SW-050902-SPRTT016-201	ORP	1	65.6	mV
SPRTT016	SW-050902-SPRTT016-201	ORP	2	69.7	mV
SPRTT016	SW-050902-SPRTT016-201	ORP	3	72.9	mV
SPRTT016	SW-051002-SPRTT016-301	TEMP	1	5.10	deg C
SPRTT016	SW-051002-SPRTT016-301	TEMP	2	5.13	deg C
SPRTT016	SW-051002-SPRTT016-301	TEMP	3	5.15	deg C
SPRTT016	SW-051002-SPRTT016-301	pH	1	8.35	
SPRTT016	SW-051002-SPRTT016-301	pH	2	8.34	
SPRTT016	SW-051002-SPRTT016-301	pH	3	8.35	
SPRTT016	SW-051002-SPRTT016-301	SC	1	221	uS/cm
SPRTT016	SW-051002-SPRTT016-301	SC	2	222	uS/cm
SPRTT016	SW-051002-SPRTT016-301	SC	3	221	uS/cm
SPRTT016	SW-051002-SPRTT016-301	TURB	1	1.6	NTU
SPRTT016	SW-051002-SPRTT016-301	TURB	2	1.7	NTU
SPRTT016	SW-051002-SPRTT016-301	TURB	3	1.7	NTU
SPRTT016	SW-051002-SPRTT016-301	DO	1	12.79	mg/L
SPRTT016	SW-051002-SPRTT016-301	DO	2	12.75	mg/L
SPRTT016	SW-051002-SPRTT016-301	DO	3	12.70	mg/L
SPRTT016	SW-051002-SPRTT016-301	ORP	1	118	mV
SPRTT016	SW-051002-SPRTT016-301	ORP	2	117	mV
SPRTT016	SW-051002-SPRTT016-301	ORP	3	109	mV
SSBTT022	SW-050902-SSBTT022-101	TEMP	1	12.12	deg C
SSBTT022	SW-050902-SSBTT022-101	TEMP	2	12.09	deg C
SSBTT022	SW-050902-SSBTT022-101	TEMP	3	12.08	deg C
SSBTT022	SW-050902-SSBTT022-101	pH	1	8.06	
SSBTT022	SW-050902-SSBTT022-101	pH	2	7.99	
SSBTT022	SW-050902-SSBTT022-101	pH	3	7.98	
SSBTT022	SW-050902-SSBTT022-101	SC	1	295	uS/cm
SSBTT022	SW-050902-SSBTT022-101	SC	2	294	uS/cm
SSBTT022	SW-050902-SSBTT022-101	SC	3	293	uS/cm
SSBTT022	SW-050902-SSBTT022-101	TURB	1	1.3	NTU
SSBTT022	SW-050902-SSBTT022-101	TURB	2	0.80	NTU
SSBTT022	SW-050902-SSBTT022-101	TURB	3	1.2	NTU
SSBTT022	SW-050902-SSBTT022-101	DO	1	8.87	mg/L
SSBTT022	SW-050902-SSBTT022-101	DO	2	8.71	mg/L
SSBTT022	SW-050902-SSBTT022-101	DO	3	8.65	mg/L
SSBTT022	SW-050902-SSBTT022-101	ORP	1	192	mV
SSBTT022	SW-050902-SSBTT022-101	ORP	2	198	mV
SSBTT022	SW-050902-SSBTT022-101	ORP	3	201	mV
SCMTT026	SW-050702-SCMTT026-101	TEMP	1	10.07	deg C
SCMTT026	SW-050702-SCMTT026-101	TEMP	2	10.22	deg C
SCMTT026	SW-050702-SCMTT026-101	TEMP	3	10.23	deg C
SCMTT026	SW-050702-SCMTT026-101	pH	1	8.54	
SCMTT026	SW-050702-SCMTT026-101	pH	2	8.67	
SCMTT026	SW-050702-SCMTT026-101	pH	3	8.66	
SCMTT026	SW-050702-SCMTT026-101	SC	1	325	uS/cm

SCMTT026	SW-050702-SCMTT026-101	SC	2	326	uS/cm
SCMTT026	SW-050702-SCMTT026-101	SC	3	326	uS/cm
SCMTT026	SW-050702-SCMTT026-101	TURB	1	4.8	NTU
SCMTT026	SW-050702-SCMTT026-101	TURB	2	3.2	NTU
SCMTT026	SW-050702-SCMTT026-101	TURB	3	2.8	NTU
SCMTT026	SW-050702-SCMTT026-101	DO	1	10.03	mg/L
SCMTT026	SW-050702-SCMTT026-101	DO	2	10.02	mg/L
SCMTT026	SW-050702-SCMTT026-101	DO	3	10.00	mg/L
SCMTT026	SW-050702-SCMTT026-101	ORP	1	215	mV
SCMTT026	SW-050702-SCMTT026-101	ORP	2	222	mV
SCMTT026	SW-050702-SCMTT026-101	ORP	3	224	mV
SCMTT026	SW-050902-SCMTT026-201	TEMP	1	8.02	deg C
SCMTT026	SW-050902-SCMTT026-201	TEMP	2	8.06	deg C
SCMTT026	SW-050902-SCMTT026-201	TEMP	3	8.10	deg C
SCMTT026	SW-050902-SCMTT026-201	pH	1	8.77	
SCMTT026	SW-050902-SCMTT026-201	pH	2	8.71	
SCMTT026	SW-050902-SCMTT026-201	pH	3	8.62	
SCMTT026	SW-050902-SCMTT026-201	SC	1	284	uS/cm
SCMTT026	SW-050902-SCMTT026-201	SC	2	283	uS/cm
SCMTT026	SW-050902-SCMTT026-201	SC	3	284	uS/cm
SCMTT026	SW-050902-SCMTT026-201	TURB	1	2.8	NTU
SCMTT026	SW-050902-SCMTT026-201	TURB	2	3.1	NTU
SCMTT026	SW-050902-SCMTT026-201	TURB	3	3.2	NTU
SCMTT026	SW-050902-SCMTT026-201	DO	1	10.88	mg/L
SCMTT026	SW-050902-SCMTT026-201	DO	2	10.70	mg/L
SCMTT026	SW-050902-SCMTT026-201	DO	3	10.65	mg/L
SCMTT026	SW-050902-SCMTT026-201	ORP	1	176	mV
SCMTT026	SW-050902-SCMTT026-201	ORP	2	186	mV
SCMTT026	SW-050902-SCMTT026-201	ORP	3	192	mV
SCMTT026	SW-051002-SCMTT026-401	TEMP	1	8.15	deg C
SCMTT026	SW-051002-SCMTT026-401	TEMP	2	8.15	deg C
SCMTT026	SW-051002-SCMTT026-401	TEMP	3	8.15	deg C
SCMTT026	SW-051002-SCMTT026-401	pH	1	8.41	
SCMTT026	SW-051002-SCMTT026-401	pH	2	8.41	
SCMTT026	SW-051002-SCMTT026-401	pH	3	8.44	
SCMTT026	SW-051002-SCMTT026-401	SC	1	280	uS/cm
SCMTT026	SW-051002-SCMTT026-401	SC	2	282	uS/cm
SCMTT026	SW-051002-SCMTT026-401	SC	3	281	uS/cm
SCMTT026	SW-051002-SCMTT026-401	TURB	1	3.0	NTU
SCMTT026	SW-051002-SCMTT026-401	TURB	2	2.5	NTU
SCMTT026	SW-051002-SCMTT026-401	TURB	3	3.0	NTU
SCMTT026	SW-051002-SCMTT026-401	DO	1	12.26	mg/L
SCMTT026	SW-051002-SCMTT026-401	DO	2	12.17	mg/L
SCMTT026	SW-051002-SCMTT026-401	DO	3	12.10	mg/L
SCMTT026	SW-051002-SCMTT026-401	ORP	1	195	mV
SCMTT026	SW-051002-SCMTT026-401	ORP	2	202	mV
SCMTT026	SW-051002-SCMTT026-401	ORP	3	205	mV
SCPTT027	SW-050702-SCPTT027-101	TEMP	1	9.16	deg C
SCPTT027	SW-050702-SCPTT027-101	TEMP	2	9.14	deg C
SCPTT027	SW-050702-SCPTT027-101	TEMP	3	9.12	deg C

SCPTT027	SW-050702-SCPTT027-101	pH	1	8.51	
SCPTT027	SW-050702-SCPTT027-101	pH	2	8.50	
SCPTT027	SW-050702-SCPTT027-101	pH	3	8.49	
SCPTT027	SW-050702-SCPTT027-101	SC	1	203	uS/cm
SCPTT027	SW-050702-SCPTT027-101	SC	2	204	uS/cm
SCPTT027	SW-050702-SCPTT027-101	SC	3	204	uS/cm
SCPTT027	SW-050702-SCPTT027-101	TURB	1	2.2	NTU
SCPTT027	SW-050702-SCPTT027-101	TURB	2	1.9	NTU
SCPTT027	SW-050702-SCPTT027-101	TURB	3	2.6	NTU
SCPTT027	SW-050702-SCPTT027-101	DO	1	10.09	mg/L
SCPTT027	SW-050702-SCPTT027-101	DO	2	10.07	mg/L
SCPTT027	SW-050702-SCPTT027-101	DO	3	10.09	mg/L
SCPTT027	SW-050702-SCPTT027-101	ORP	1	239	mV
SCPTT027	SW-050702-SCPTT027-101	ORP	2	236	mV
SCPTT027	SW-050702-SCPTT027-101	ORP	3	233	mV
SCPTT027	SW-050902-SCPTT027-201	TEMP	1	9.95	deg C
SCPTT027	SW-050902-SCPTT027-201	TEMP	2	9.94	deg C
SCPTT027	SW-050902-SCPTT027-201	TEMP	3	9.92	deg C
SCPTT027	SW-050902-SCPTT027-201	pH	1	8.35	
SCPTT027	SW-050902-SCPTT027-201	pH	2	8.28	
SCPTT027	SW-050902-SCPTT027-201	pH	3	8.26	
SCPTT027	SW-050902-SCPTT027-201	SC	1	318	uS/cm
SCPTT027	SW-050902-SCPTT027-201	SC	2	317	uS/cm
SCPTT027	SW-050902-SCPTT027-201	SC	3	318	uS/cm
SCPTT027	SW-050902-SCPTT027-201	TURB	1	1.8	NTU
SCPTT027	SW-050902-SCPTT027-201	TURB	2	1.9	NTU
SCPTT027	SW-050902-SCPTT027-201	TURB	3	1.5	NTU
SCPTT027	SW-050902-SCPTT027-201	DO	1	10.98	mg/L
SCPTT027	SW-050902-SCPTT027-201	DO	2	10.86	mg/L
SCPTT027	SW-050902-SCPTT027-201	DO	3	10.74	mg/L
SCPTT027	SW-050902-SCPTT027-201	ORP	1	192	mV
SCPTT027	SW-050902-SCPTT027-201	ORP	2	196	mV
SCPTT027	SW-050902-SCPTT027-201	ORP	3	199	mV
SCPTT027	SW-051002-SCPTT027-301	TEMP	1	7.29	deg C
SCPTT027	SW-051002-SCPTT027-301	TEMP	2	7.29	deg C
SCPTT027	SW-051002-SCPTT027-301	TEMP	3	7.31	deg C
SCPTT027	SW-051002-SCPTT027-301	pH	1	8.67	
SCPTT027	SW-051002-SCPTT027-301	pH	2	8.52	
SCPTT027	SW-051002-SCPTT027-301	pH	3	8.44	
SCPTT027	SW-051002-SCPTT027-301	SC	1	299	uS/cm
SCPTT027	SW-051002-SCPTT027-301	SC	2	299	uS/cm
SCPTT027	SW-051002-SCPTT027-301	SC	3	299	uS/cm
SCPTT027	SW-051002-SCPTT027-301	TURB	1	1.3	NTU
SCPTT027	SW-051002-SCPTT027-301	TURB	2	1.9	NTU
SCPTT027	SW-051002-SCPTT027-301	TURB	3	1.3	NTU
SCPTT027	SW-051002-SCPTT027-301	DO	1	12.86	mg/L
SCPTT027	SW-051002-SCPTT027-301	DO	2	12.88	mg/L
SCPTT027	SW-051002-SCPTT027-301	DO	3	12.83	mg/L
SCPTT027	SW-051002-SCPTT027-301	ORP	1	184	mV
SCPTT027	SW-051002-SCPTT027-301	ORP	2	189	mV

SCPTT027	SW-051002-SCPTT027-301	ORP	3	193	mV
MCBTT031	SW-050702-MCBTT031-101	TEMP	1	9.74	deg C
MCBTT031	SW-050702-MCBTT031-101	TEMP	2	9.85	deg C
MCBTT031	SW-050702-MCBTT031-101	TEMP	3	9.87	deg C
MCBTT031	SW-050702-MCBTT031-101	pH	1	8.44	
MCBTT031	SW-050702-MCBTT031-101	pH	2	8.35	
MCBTT031	SW-050702-MCBTT031-101	pH	3	8.33	
MCBTT031	SW-050702-MCBTT031-101	SC	1	474	uS/cm
MCBTT031	SW-050702-MCBTT031-101	SC	2	476	uS/cm
MCBTT031	SW-050702-MCBTT031-101	SC	3	478	uS/cm
MCBTT031	SW-050702-MCBTT031-101	TURB	1	4.0	NTU
MCBTT031	SW-050702-MCBTT031-101	TURB	2	5.3	NTU
MCBTT031	SW-050702-MCBTT031-101	TURB	3	6.0	NTU
MCBTT031	SW-050702-MCBTT031-101	DO	1	9.97	mg/L
MCBTT031	SW-050702-MCBTT031-101	DO	2	9.87	mg/L
MCBTT031	SW-050702-MCBTT031-101	DO	3	9.91	mg/L
MCBTT031	SW-050702-MCBTT031-101	ORP	1	237	mV
MCBTT031	SW-050702-MCBTT031-101	ORP	2	239	mV
MCBTT031	SW-050702-MCBTT031-101	ORP	3	242	mV
MCBTT031	SW-050902-MCBTT031-201	TEMP	1	9.14	deg C
MCBTT031	SW-050902-MCBTT031-201	TEMP	2	9.11	deg C
MCBTT031	SW-050902-MCBTT031-201	TEMP	3	9.10	deg C
MCBTT031	SW-050902-MCBTT031-201	pH	1	8.51	
MCBTT031	SW-050902-MCBTT031-201	pH	2	8.48	
MCBTT031	SW-050902-MCBTT031-201	pH	3	8.47	
MCBTT031	SW-050902-MCBTT031-201	SC	1	406	uS/cm
MCBTT031	SW-050902-MCBTT031-201	SC	2	407	uS/cm
MCBTT031	SW-050902-MCBTT031-201	SC	3	405	uS/cm
MCBTT031	SW-050902-MCBTT031-201	TURB	1	6.0	NTU
MCBTT031	SW-050902-MCBTT031-201	TURB	2	6.5	NTU
MCBTT031	SW-050902-MCBTT031-201	TURB	3	6.5	NTU
MCBTT031	SW-050902-MCBTT031-201	DO	1	9.94	mg/L
MCBTT031	SW-050902-MCBTT031-201	DO	2	9.74	mg/L
MCBTT031	SW-050902-MCBTT031-201	DO	3	9.68	mg/L
MCBTT031	SW-050902-MCBTT031-201	ORP	1	228	mV
MCBTT031	SW-050902-MCBTT031-201	ORP	2	230	mV
MCBTT031	SW-050902-MCBTT031-201	ORP	3	231	mV
MCBTT031	SW-051002-MCBTT031-301	TEMP	1	6.95	deg C
MCBTT031	SW-051002-MCBTT031-301	TEMP	2	6.94	deg C
MCBTT031	SW-051002-MCBTT031-301	TEMP	3	6.93	deg C
MCBTT031	SW-051002-MCBTT031-301	pH	1	8.34	
MCBTT031	SW-051002-MCBTT031-301	pH	2	8.29	
MCBTT031	SW-051002-MCBTT031-301	pH	3	8.27	
MCBTT031	SW-051002-MCBTT031-301	SC	1	383	uS/cm
MCBTT031	SW-051002-MCBTT031-301	SC	2	383	uS/cm
MCBTT031	SW-051002-MCBTT031-301	SC	3	383	uS/cm
MCBTT031	SW-051002-MCBTT031-301	TURB	1	3.5	NTU
MCBTT031	SW-051002-MCBTT031-301	TURB	2	4.3	NTU
MCBTT031	SW-051002-MCBTT031-301	TURB	3	4.4	NTU
MCBTT031	SW-051002-MCBTT031-301	DO	1	11.87	mg/L

MCBTT031	SW-051002-MCBTT031-301	DO	2	11.77	mg/L
MCBTT031	SW-051002-MCBTT031-301	DO	3	11.70	mg/L
MCBTT031	SW-051002-MCBTT031-301	ORP	1	205	mV
MCBTT031	SW-051002-MCBTT031-301	ORP	2	207	mV
MCBTT031	SW-051002-MCBTT031-301	ORP	3	210	mV
GTCTT032	SW-050702-GTCTT032-101	TEMP	1	8.13	deg C
GTCTT032	SW-050702-GTCTT032-101	TEMP	2	8.14	deg C
GTCTT032	SW-050702-GTCTT032-101	TEMP	3	8.14	deg C
GTCTT032	SW-050702-GTCTT032-101	pH	1	8.33	
GTCTT032	SW-050702-GTCTT032-101	pH	2	8.32	
GTCTT032	SW-050702-GTCTT032-101	pH	3	8.32	
GTCTT032	SW-050702-GTCTT032-101	SC	1	300	uS/cm
GTCTT032	SW-050702-GTCTT032-101	SC	2	300	uS/cm
GTCTT032	SW-050702-GTCTT032-101	SC	3	300	uS/cm
GTCTT032	SW-050702-GTCTT032-101	TURB	1	2.2	NTU
GTCTT032	SW-050702-GTCTT032-101	TURB	2	2.4	NTU
GTCTT032	SW-050702-GTCTT032-101	TURB	3	1.7	NTU
GTCTT032	SW-050702-GTCTT032-101	DO	1	9.76	mg/L
GTCTT032	SW-050702-GTCTT032-101	DO	2	9.71	mg/L
GTCTT032	SW-050702-GTCTT032-101	DO	3	9.70	mg/L
GTCTT032	SW-050702-GTCTT032-101	ORP	1	231	mV
GTCTT032	SW-050702-GTCTT032-101	ORP	2	236	mV
GTCTT032	SW-050702-GTCTT032-101	ORP	3	237	mV
GTCTT032	SW-050902-GTCTT032-201	TEMP	1	8.13	deg C
GTCTT032	SW-050902-GTCTT032-201	TEMP	2	8.11	deg C
GTCTT032	SW-050902-GTCTT032-201	TEMP	3	8.11	deg C
GTCTT032	SW-050902-GTCTT032-201	pH	1	8.17	
GTCTT032	SW-050902-GTCTT032-201	pH	2	8.16	
GTCTT032	SW-050902-GTCTT032-201	pH	3	8.17	
GTCTT032	SW-050902-GTCTT032-201	SC	1	262	uS/cm
GTCTT032	SW-050902-GTCTT032-201	SC	2	263	uS/cm
GTCTT032	SW-050902-GTCTT032-201	SC	3	263	uS/cm
GTCTT032	SW-050902-GTCTT032-201	TURB	1	4.2	NTU
GTCTT032	SW-050902-GTCTT032-201	TURB	2	4.5	NTU
GTCTT032	SW-050902-GTCTT032-201	TURB	3	3.2	NTU
GTCTT032	SW-050902-GTCTT032-201	DO	1	10.18	mg/L
GTCTT032	SW-050902-GTCTT032-201	DO	2	9.80	mg/L
GTCTT032	SW-050902-GTCTT032-201	DO	3	9.67	mg/L
GTCTT032	SW-050902-GTCTT032-201	ORP	1	228	mV
GTCTT032	SW-050902-GTCTT032-201	ORP	2	230	mV
GTCTT032	SW-050902-GTCTT032-201	ORP	3	231	mV
GTCTT032	SW-051002-GTCTT032-301	TEMP	1	8.63	deg C
GTCTT032	SW-051002-GTCTT032-301	TEMP	2	8.64	deg C
GTCTT032	SW-051002-GTCTT032-301	TEMP	3	8.65	deg C
GTCTT032	SW-051002-GTCTT032-301	pH	1	8.32	
GTCTT032	SW-051002-GTCTT032-301	pH	2	8.30	
GTCTT032	SW-051002-GTCTT032-301	pH	3	8.29	
GTCTT032	SW-051002-GTCTT032-301	SC	1	266	uS/cm
GTCTT032	SW-051002-GTCTT032-301	SC	2	266	uS/cm
GTCTT032	SW-051002-GTCTT032-301	SC	3	266	uS/cm

GTCTT032	SW-051002-GTCTT032-301	TURB	1	2.7	NTU
GTCTT032	SW-051002-GTCTT032-301	TURB	2	3.4	NTU
GTCTT032	SW-051002-GTCTT032-301	TURB	3	2.9	NTU
GTCTT032	SW-051002-GTCTT032-301	DO	1	10.85	mg/L
GTCTT032	SW-051002-GTCTT032-301	DO	2	10.91	mg/L
GTCTT032	SW-051002-GTCTT032-301	DO	3	10.91	mg/L
GTCTT032	SW-051002-GTCTT032-301	ORP	1	215	mV
GTCTT032	SW-051002-GTCTT032-301	ORP	2	218	mV
GTCTT032	SW-051002-GTCTT032-301	ORP	3	219	mV