GUIDANCE AND MONITORING PROTOCOL FOR BRIDGE ROUTINE MAINTENANCE CLEANING AND WASHING

APPROACH

The Bridge Maintenance Cleaning and Washing and Ferry Terminal Washing General Permit (Permit) was developed to allow regular maintenance cleaning of all bridges, preparatory (pre-painting) washing, and facilities and associated steel structures over waters of the State. Cleaning, washing, and painting prolong the integrity and safety of these structures, and the permit allows the Washington State Department of Transportation (WSDOT) and local jurisdictions to conduct those activities. Edits have been made to the August 2018 protocol for bridge maintenance so that the different types of structures have separate protocols. This write up will focus on the WSDOT washing of steel bridges.

WSDOT maintains over 3,100 bridge structures throughout the state including the 157 fracture critical steel structures over waterways. The Bridge Maintenance Cleaning and Washing and Ferry Terminal Washing General Permit requires WSDOT to follow monitoring protocols for routine maintenance cleaning and flushing. This protocol covers the sampling of routine maintenance cleaning and flushing of steel bridges.

Bridges in Washington are inspected on a routine basis and are periodically washed to allow for visual inspection and to maintain structural integrity. The water generated during the washing process (flushing) that comes into contact with paint and accumulated debris (dirt, moss, sediments, bird nests and associated fecal material, marine growth, etc.) on the structures can pick up contaminants that have the potential to affect the quality of receiving waters. This NPDES General Permit requires the Permittee to annually obtain samples of the wash water from 10% of representative bridge maintenance cleaning and flushing projects (or 5 total bridges, whichever is highest, per S5B of the NPDES General Permit) for testing and characterization of the metals in the discharge. Ecology will use the data from this and other maintenance cleaning and flushing projects to evaluate whether the discharge of flushing water presents a reasonable potential to exceed water quality standards.

Waste is generated by two separate actions during the bridge cleaning and flushing effort. The first is generated during the scraping and vacuuming (dry cleaning) of debris. Only a small amount of waste (if any) is discharged during this part of the process because most is captured by placing scrapings into a containment system and/or possibly vacuumed directly into a vactor truck. The second source of waste is from rinsing the structure after the scraping and vacuuming. This second action represents almost all of the wastewater that enters the receiving water. Due to the lack of water generated during the first cleaning step, it is not practical or necessary to collect a sample to comply with this specific discharge permit.

Wash Water Composite Sample

Due to the nature of the maintenance cleaning and washing work, the composite sample is neither time nor flow proportioned. Instead, the composite sample is a combination of the aliquots (subsamples) collected from collection points along the bridge.

Representative Sample Locations

Since the collected wash water from the bridge consists of composited distinct samples, WSDOT staff will select three representative collection locations, and then document how the collection locations were selected in the field notes. The wash water collection areas should represent the overall type of wash water coming off the bridge. For example, maintenance washing consists of all of the horizontal and vertical surfaces that will include the metal joints of the bridge. These joints essentially funnel much of the water from all surfaces. These joints should be targeted as good sample collection points to place the collection devices.

The basic protocol is to collect wash water samples from three different locations along the bridge structure. Samples will be collected from the wash water above the waterbodies by lowering the sample collection devices and connecting the bridge structure before the application of the rinse water begins. Securing (i.e tying off/hanging) the collection container, and leaving it there during the rinsing. A potential difficulty related to this protocol is to collect an adequate volume of water at each of the three locations. Therefore using up to two sample containers with a large opening (e.g., a five-gallon bucket) and that each hung off the bridge should provide adequate volume of water to sample. The two containers should be hung next to each other and at the same elevation from the structure. Try to locate the sampling containers under structural connection points where debris builds up and under vertical support structures that concentrates effluent into a single stream. Selecting three locations along the structure and collecting separate samples is recommended as a means of accounting for field variability in pollutant concentrations.

If insufficient sample wash water volume exists in the collection devices, and after discussion with the lab on any other options, then the sampling event is invalid and will not count as an sampled washing event as defined in the Bridge and Ferry Washing Maintenance and Washing General permit. If collected samples are spilled, broken or otherwise compromised during the process, than the sampling event is invalid and will not count as a completed sampling event. It may assist the person conducting the sampling to bring extra sampling containers in the event a container becomes compromised.

The following sections describe specific steps for conducting wash water sampling in more detail.

Background and downstream sampling

WSDOT must also sample a background and effluent sample of the receiving waters. WSDOT will need to sample the background of the receiving water upstream of the flushing point. WSDOT will need to sample downstream of the effluent flushing point. The sampling will be for the same parameters as listed in Table 1.

EQUIPMENT PREPARATION

WSDOT staff will use clean sampling collection equipment and laboratory provided clean sample containers to collect laboratory samples.
WSDOT staff will acquire the necessary supplies (ropes, gloves, buckets, etc.) to conduct the sample collection of wash water.
WSDOT staff should first seek to see if the Manchester Laboratory (Washington State Laboratory) can provide the sampling services and to order the supplies from them. If not, WSDOT can seek the services and order laboratory supplies from an accredited laboratory listed under contract with State of Washington (Analytical Laboratory Services List). It is important that WSDOT staff share with the lab the analytes requiring analysis including associated detection limits required under the permit (see Table 1). WSDOT staff can request the laboratory ship sample supplies or pick-up the materials directly from the laboratory.
WSDOT staff should work with the lab on logistics for ensuring the samples arrive to the lab in the condition the lab requires (iced, delivered, transported, physically dropped off).

A. Collect the following equipment:
    1. Six five-gallon buckets with lids and handles. Buckets will need to be clean. You can clean and decontaminate the bucket according to EPA field equipment cleaning and decontamination standard operating procedure (SESDPROC-205-R3) prior to sample collection. Remove all the debris and wipe the buckets, water rinse the bucket, washing the bucket with Liquinox or similar phosphorous free detergent, use a brush to agitate any stuck on material, rinse with distilled water (if possible). Collection Devices should be allowed to dry prior to sample collection.
    2. Clean nylon rope cut into appropriate lengths for hanging the buckets or poles, if needed. (Note: If unknown, you can determine an appropriate rope length by reviewing the as builds, http://beist/InventoryAndRepair/Inventory/BRIDGE, quick trip to the bridge site or with photos. In most cases, hang the buckets from the lowest horizontal support directly under the deck).
    3. Water sampling device such as a scope, beaker or bailer to place appropriate amount of collected water into laboratory sample containers.
    4. Laboratory sample collection containers – Sample five (5) samples for each total hardness, copper, lead and zinc. Laboratory sample jars may differ from lab to lab.
    5. Specific Laboratory Chain of Custody
    6. WSDOT bridge wash sampling field notebook
    7. Bridge Wash Water Sampling and Monitoring Form (Appendix C).
    8. Camera or phone that can take pictures.
    9. Sharpie/pencils/pens.
    10. Sample labels.
    11. Cooler(s) with ice.
    12. Bubble wrap.
    13. Safety equipment (nitrile gloves (one pair for each sample location), goggles, reflective clothing, hardhat, earplugs, work boots, flashlight or headlamp).
B. Put on safety goggles and gloves, and, if possible, keep sample buckets covered with plastic lids to prevent airborne contamination until collecting a sample.
C. Composite sample containers should be organized and labeled (for example, Project name (White River Bridge (WRB), sample identification (i.e. WRB LS (Left Side) #1, date sampled, and time sampled). It may assist to write Left, Middle, and Right with a number 1 or 2 on the sample collection buckets to correspond to the sampling locations.
D. Use a sampling device to place the wash water sample into corresponding sample containers.
E. Fill out the monitoring form at the end of this protocol (Appendix C).
F. Complete all Laboratory provided sample labels, paperwork and chain of custody
G. Call the contracted laboratory and coordinate sample pick-up or delivery. Samples should be received by the laboratory as soon as possible after collection (within 24 hours).

Sample Collection

Follow the safety procedure in Appendix B. The following procedures should be implemented during bridge routine maintenance cleaning and flushing activities:

A. Coordinate schedule with the Bridge Washing Team to ensure date, time, access locations, and point of contract at the bridge.
B. Walk the bridge and immediate area to determine sample location and around the bridge to determine select at least three monitoring locations for bridge water sample collection (be sure to clearly document the selection strategy and sampling locations in the WSDOT bridge wash water sampling notebook field notes). They should be in areas likely to receive a significant amount of wash water (e.g. directly under vertical support structures or in areas with heavy buildup of debris). Also determine (including how to access) sample locations for background and effluent for the receiving waters underneath the bridge.
C. WSDOT staff should always wear clean nitrile gloves when handling laboratory cleaned equipment or when collecting samples. A clean pair will need be needed between each sampling location. Clean gloves eliminate the potential for cross-contamination including contaminating the laboratory samples.
D. Use clean nylon or other suitable clean rope to lower and hang at least two sample buckets over the bridge deck for each monitoring location. Using two buckets per location should ensure that an adequate amount of water is collected.
E. Upon completion of the washing effort in the bridge sample collection areas, raise up the sample buckets at each location to the deck. The rinse water collected in the buckets at each distinct location should be mixed together in a single bucket (i.e. “composited”).
F. Using a suitable collection device (like a bailer), carefully transfer water from the composited bucket into the sample containers provided by the laboratory. DO NOT OVERFILL as this may compromise the sample especially those containing preservatives. Fill pre-labeled sample containers. Fill the sample containers over the bucket of composited water (in the event of an overfill):
   o
G. Repeat above steps for the remaining samples.
H. If possible, fill an additional set of sample containers. This will serve as a field duplicate.
I. For the Background and effluent samples taken from the waterbody under the bridge, for each sampling location use a clean bailer or other collection device on a clean rope to gather the water for sampling. Transfer the water collected in the bailer or other collection devices into the sample containers. Fill out labels and put in sample containers.
J. Transfer samples into coolers and, if sampling for turbidity (should be in field but still optional with laboratory analysis, put on ice for delivery to the laboratory (samples should be $\leq 6°$ C upon arrival at the laboratory)
K. Complete all fields on the laboratory provided chain of custody form in blue or black pen (see example in Appendix D).

L. Deliver sample containers and the chain of custody form to the laboratory or lab courier. Include the chain of custody form with cooler(s).

M. Record additional notes and observations. If there are industrial structures, railroads, or uniqueness regarding the bridge, please include them in your notes. If there is a stream gauge, please record the listed stream flow during the day/time of sampling. If no gauge is available and the conditions are safe, cubic feet per second can be measured in the field by following the following discharge protocol https://www.usgs.gov/special-topic/water-science-school/science/how-streamflow-measured?qt-science_center_objects=0#qt-science_center_objects.

Quality Assurance & Quality Control

In order to maintain a high-level of data quality, sample equipment will be clean or decontaminated prior to sample collection and one (1) duplicate sample will be collected from each sampling event.

WSDOT staff will collect composite field duplicates at an approximate rate of 10% of the total samples collected each sample year. Field duplicates can be collected from each composite sample in which it is determined there is enough extra volume (to fill a complete set of sample jars) for additional analyses. Be sure to use nitrile gloves and EPA clean hands/dirty hands techniques to avoid contamination.

WSDOT staff will collect field blanks once per sample year. Field blanks will be used to determine whether contamination may have occurred during sampling. Equipment rinse-ate blanks consist of laboratory-supplied, contaminate-free water that is swirled in the sampling containers and then split are an alternative QA/QC sample that could be collected, if necessary. A filter blank could also be obtained in the field by running deionized water through a clean filter to fill a dissolved metals bottle if field filtration of samples occurs (for these sampling events no field filtration is anticipated). A filter blank will not be necessary if the lab processes your samples.

Type	Interval	Definition
Cleaning	All sample containers will be obtained laboratory clean	Contracted lab provides clean sample containers for the collection of wash water samples.
Decontamination	All sample collection devices will be decontaminated	WSDOT staff cleans sample collection equipment between locations and events with phosphorous free detergent and distilled water. Bag the equipment in contaminant-free plastic container for transport to and from the field.
Duplicates	10% of overall samples (1/sampling event)	Samples taken from the same sample water and submitted as regular samples.
Blanks	Once per field season	Rinse sampling equipment with deionized water or laboratory supplied deionized water to check for cross-contamination.

Laboratory Procedures

Chain of Custody

Chain of custody (COC) procedures are necessary to ensure thorough documentation of handling for each sample, from field collection to laboratory analysis. The purpose of this procedure is to minimize errors, maintain sample integrity, and protect the quality of data

collected. WSDOT staff will complete and submit a COC form (see Appendix D) with each sample event. Individuals who manipulate or handle samples are required to log their activities on the form in pen.

Definitions of custody from the Lab User's Manual (MEL, 2008) are described below:

A sample is considered to be under a person's custody if it is:

- In the individual's physical possession,
- In the individual's sight,
- Secured in a tamper-proof way by that person, or
- Secured by the person in an area that is restricted to authorized personnel.
- Information included in a COC include:
    1. Sample identification
    2. Security procedures
    3. Chain of custody (COC) record
    4. Field log book

When the laboratory receives samples, it takes responsibility for the samples and maintenance of the COC forms. The laboratory then conducts its procedures for sample log-in, storage, holding time, tracking, and distribution of final results data to the responsible parties.

Laboratory Selection and Coordination

The information found in Table 1 must be provided to the laboratory to ensure the appropriate tests are performed with the required detection limits.

- The laboratory selected must be accredited under the provisions of Accreditation of Environmental Laboratories, Chapter 173-50 WAC.
- Should be under contract to provide services to WA State agencies.
- Will perform internal Quality Assurance checks and share that data with WSDOT.

The lab data package should include, but not be limited to:

- A case narrative including date samples were collected, received, filtered, extracted, and analyzed.
- Practical quantitation limits and sample results.
- Methods blanks.
- Spike levels, blanks, and percent recovery.
- Laboratory duplicates and relative percent difference between duplicates.

TABLE 1. PARAMETERS AND SAMPLE ANALYTICAL METHODS (Freshwater).

Parameter	Method Number	Detection Limit(3)	*Quantitation Level*(4) (µg/L)	Holding Time
Total Hardness	SM2340B(1)	2 mg/L	200 as $CaCO_3$/L	6 months
Total and Dissolved Copper	200.8(2)	1.0 ppb(5)		6 months
Total and Dissolved Lead		0.5 ppb		
Total and Dissolved Zinc		2.5 ppb		

(1) Standard Method 2340B for total hardness

(2) U.S. Environmental Protection Agency (EPA) Method 200.8 for dissolved metals.

(3) Detection Limit - As determined by the procedure given in 40 CFR part 136, Appendix B (as amended)

(4) Quantitation Level - The smallest detectable concentration of analyte greater than the Detection Limit where the accuracy (precision & bias) achieves the objectives of the intended purpose.

(5) ppb (parts per billion)=µg/L (micrograms per liter)

Routine Maintenance Cleaning and Washing – Sample Event Report

WSDOT staff who performed the sampling event will need to submit a daily report once final laboratory samples have been received. The daily report will consist of the following:

1. Bridge Wash Water Sampling and Monitoring Form (HATS)
2. The total volume of water discharged to surface waters, reported in gallons (get from the washing crew).
3. Time spent flushing the structure (get from the washing crew).
4. Stream flow discharge rate data for the date that sampling occurred (nearest USGS Gage)
5. Sample Results
6. Map or overlay of the bridge that show sample collection locations
7. Copies of field notes
    a. Field notes should indicate if dry cleaning occurred including removal of any nests, (provide that location on the bridge), bmps in place (drains covered, ground covered), and anything unique about the setting (like rail line locations that may be adjacent to the bridge, industry in the immediate area of the bridge)

Bridge Routine Maintenance Cleaning and Washing - Final Monitoring Report

WSDOT will submit a single report that addresses the requirements of the *Bridge and Ferry Terminal Maintenance Cleaning and Washing General Permit* by February 28th of the following year. Please submit the test results, pictures, field notes, a diagram of the structure showing where the samples were taken, and the Bridge/Ferry Terminal Routine Maintenance Washing Monitoring Form to the NPDES Lead at ESO within three weeks after the sample results come

back from the lab. The NPDES Lead will coordinate with WSDOT staff to write a report and submit it to the Department of Ecology per permit requirements in sections S5 and S8. These requirements may include the following:

- The date, including year, and time of day samples were collected.
- The location where samples were collected (all effluent samples).
- The river flow at the time of the project, reported in cubic feet per second (cfs) if freshwater and available.
- The total volume of water used and discharged to surface waters, reported in gallons (get from the washing crew).
- The time spent in hour or minutes flushing the structure (get from the washing crew).
- The specific detection limits provided to the lab for analysis (provided in table above).
- Copies of any field notes.

The attached monitoring form (Appendix C) can be modified and used in the field to ensure all the necessary information is collected and documented. Be sure to document the steps taken to identify representative sampling locations in field notes.

Consider for All Reports:

Include an aerial photograph showing the location of the terminal, bridge sampling locations. Consider taking photographs of the work area, wash water collection process, and any best management practices (BMPs) used. These photographs are very beneficial when included in the report and will provide Ecology with a clear understanding of the work/monitoring performed under this permit.

Glossary

accreditation – A certification process for laboratories, designed to evaluate and document a lab's ability to perform analytical methods and produce acceptable data. For Ecology, Laboratories that analyze environmental samples must be capable of providing accurate and defensible analytical data. Many grant-based or legislatively-mandated scientific studies require the use of an accredited laboratory. In Washington, such labs must receive accreditation through Ecology to ensure they are conducting analyses according to prescribed methods. Many of these labs will accept samples from businesses or the public." (WAC 173-50-040) (Kammin, 2010).

best management practices (BMPs) – The schedules of activities, prohibitions of practices, maintenance procedures, and structural and/or managerial practices approved by Ecology that, when used singly or in combination, prevent or reduce the release of pollutants to waters of Washington State (Ecology, 2014).

blank – A sample to trace sources of artificially introduced contamination. Different types of blanks include equipment blanks, field blanks, trip blank, method blank, and instrument blank. The source of contamination introduced in the field or laboratory can be deducted by comparing blank results. An equipment blank could potentially be contaminated in the field, during transport to the lab or in the lab. The method blank could only be contaminated in the lab. (EPA, 2009).

duplicate samples – two samples taken from and representative of the same population and carried through all steps of the sampling and analytical procedures in an identical manner. Duplicate samples are used to assess variance of the total method including sampling and analysis. (USEPA, 1997).

National Pollutant Discharge Elimination System (NPDES) –The national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under CWA sections 307, 318, 402, and 405. The term includes approved program. NPDES permits regulate discharges of pollutants from point sources to waters of the United States. Such discharges are illegal unless authorized by an NPDES permit.(EPA, NPDES Permit Writer Manual 2010).

quality assurance (QA) – A set of activities designed to establish and document the reliability and usability of measurement data (Kammin, 2010).

representativeness – The state or quality of being accurately representative of something. Expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at the sampling point, or an environmental condition (USEPA, 2006).

Literature Cited

Ecology. 2009. *Washington State Department of Transportation Municipal Stormwater Permit, National Pollution Discharge Elimination System and State Waste Discharge Permit for Large and Medium Municipal Separate Storm Sewer Systems.* Washington State Department of Ecology. Olympia, WA. Permit No. WAR043000A. Issuance Date February 6, 2009.

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USEPA. 1997. *Glossary of Quality Assurance Terms and Related Acronyms*. Quality Assurance Division, National Center for Environmental Research and Quality Assurance, Office of Research and Development, U.S. Environmental Protection Agency, Washington, D.C.

_USEPA_____. 2006. *Guidance on Systematic Planning Using the Data Quality Objectives Process*. Office of Environmental Information, U.S. Environmental Protection Agency, Washington, D.C.

USGS. 1999. *Principles and Practices for Quality Assurance and Quality Control*. Open-File Report 98-636. Office of Surface Water, U.S. Geological Survey, Marlborough, MA.

APPENDIX A – FIELD SAMPLE SPLITTING

If it is determined (after discussion with the lab) that samples will need to split in the field, WSDOT staff will need additional sampling supplies from an accredited laboratory under contract with WA State. Please ensure with the lab that you have adequate supplies on hand to split the samples.

A. The order may include (assumes three sample locations, and one extra bottle each for backup and field duplicate):
    1. Five (5) - 250 ml bottles preserved with H_2SO_4 if required by the lab for hardness.
    2. Five (5) - 250 ml bottles preserved with HNO_3 if required by the lab for total copper, lead, and zinc.
    3. Five (5) - 250 ml bottles without preservative
    4. Labels for bottles
    5. Disposable 0.45µm glass fiber filters
    6. Small Funnel (cleaned) for filling sample bottles
    7. HNO_3 (if required to preserve dissolved metals in the field)
    8. Chain of custody forms

Sample Preparation

Verify with the lab performing the analysis the actual quantities of wash water needed to perform each of the tests. Also, verify with the lab whether any samples are placed in containers with preservatives. These requirements are typically dependent on how long it will take to deliver the samples to the lab for processing.

The following procedures will need to be completed after the procedures already listed in step A through D of the Sample Collection portion of this protocol. These steps can be completed on-site or at a more convenient location:

Wash Water

A. Select the first sample container.
B. Using a small funnel or from an appropriate size bailer, carefully pour water into the sample containers. Fill to approximately the "shoulder" of the sample bottle. DO NOT OVERFILL/TOP – especially containers with preservative. Fill pre-labeled sample containers to sample as follows:
    1. Hardness
    2. Dissolved copper, lead, and zinc
    3. Total copper, lead, and zinc
    4. NTU – should be taken in the field.
C. Repeat above steps for the remaining samples
D. If possible, fill an additional set of sample bottles from one of the composite samples. This will serve as a field duplicate.
E. Wrap sample bottles in bubble wrap and place on ice in cooler (≤ 6° C).
F. Complete all fields on chain of custody (COC) in pen (see example in Appendix D).

G. Deliver sample bottles and COC form to laboratory or lab courier. Include COC form with cooler(s).
H. Record additional notes and observations.

APPENDIX B – SAFETY

Personnel Safety

Personal Protective Equipment (PPE)

Check in with the BRIDGE and Maintenance crew before your visit to be advised of point of contact, site-specific PPE requirements, possible safety requirements to respond to work zone or traffic related hazards and other safety requirements for collecting the water samples. Minimal safety equipment for collecting water samples include:

- ANSI Class 2 or 3 retro-reflective vests
- Safety goggles
- Nitrile gloves
- Leather or like gloves
- Steel toed shoes or boots
- Hard Hat
- Ear Protection

Please verify and safety requirements upon arriving at the bridge washing site.

Chemical Handling

The samples collected under this protocol are preserved with nitric acid or sulfuric acid. Safety Data Sheets (SDSs) for all applicable chemicals should be reviewed by staff prior to handling them (https://www.msdsonline.com/msds-search).

The sample bottles received from the lab may already contain these acids. The sampler should be aware of this when handling the bottles. Inhalation or contact with eyes, clothing or skin will cause severe burns.

If a chemical comes into contact with eyes or skin, immediately rinse the area with plenty of water for at least 15 minutes. If a chemical is inhaled, move to fresh air. If this does not improve the condition, seek immediate medical attention.

APPENDIX C - BRIDGE ROUTINE MAINTENANCE CLEANING AND WASHING MONITORING FORM

Bridge name & number:
Name of waterbody:
Project date (month and year):
Sampling date(s) & time of day:
Number of pressure washer used: (get from washing crew)
Total number of hours spent washing the structure: (get from washing crew)
Total volume of wash water discharged into the waterbody: (get from washing crew)
River flow in cubic feet per second (cfs):
Duration of the flushing operation:
Total volume (gallons) used for the operation and estimated average flow rate (gallons per minute) of water flushed/discharged during the operation. (get from washing crew)
Effluent (wash water) samples taken for: ☐ Total metals (zinc, copper, and lead): ☐ Total dissolved metals (zinc, copper, and lead): ☐ Hardness
Locations where the effluent samples were taken (attach a diagram of the bridge):
Field notes taken? If YES, attach copy to Monitoring Report. Pictures taken? If Yes, include in field notes with description.
Is lab(s) accredited?
EPA approved methods for samples the lab will use: Hardness – Standard Method 2340B Total and Dissolved Metals – EPA Method 200.8
Detection limits requirements provided to lab: Hardness - 2 mg/L Total and Dissolved Copper – 1.0 µg/L Total and Dissolved Lead - 0.50 µg/L Total and Dissolved Zinc – 2.5 µg/L
NOTES: Draw Sample Locations

ALS Environmental

CHAIN OF CUSTODY
77556

001

SR# KR809089

COC Set____of____

COC#_____

Page 1 of 1

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name	Stillaguamish Bridge
Project Number	
Project Manager	Carlen Volk
Company	WSDOT
Address	PO Box 47358, Olympia, WA 98504
Phone #	360 705 7861
email	volkc@wsdot.wa.gov
Sampler Signature	Carlen Volk
Sampler Printed Name	Carlen Volk

CLIENT SAMPLE ID	LABID	SAMPLING Date	Time	Matrix	NUMBER OF CONTAINERS	48H 180.1 / Turbidity	28D SM 2340 C / Hard Tltr T	180D 200.8 / Metals D	180D 200.8 / Metals T	999D Filter Met / Filter Met	1	2	3	4	5	Remarks
1. Still-E		3/30/17	10:00	Water	3		X	X	X							
2. Still-Mid		3/30/17	10:05		3		X	X	X							
3. Still-W		3/30/17	10:10		3		X	X	X							
4. Still-W-Dup		3/30/17	10:15		3		X	X	X							
5. Still-BG		3/30/17	10:20		4	X	X	X	X							
6. Still-Down Stream		3/30/17	10:25		1	X										
7.																
8.																
9.																
10.																

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.#_____

Bill To:_____

Turnaround Requirements

___ 24 hr. ___ 48 hr.

___ 5 Day

X Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr (Cu) Fe (Pb) Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V (Zn) Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr (Cu) Fe (Pb) Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V (Zn) Hg

Special Instructions/Comments:

Reporting Limits must be equal to or less than the following:

Total Hardness 2 mg/L, Copper 0.4 µg/L, Lead 0.1 µg/L, Zinc 0.5 µg/L

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other_____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Carlen Volk	Signature: B Smith	Signature	Signature	Signature	Signature
Printed Name: Carlen Volk	Printed Name: ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: WSDOT	Firm: 3/30/17 1458	Firm	Firm	Firm	Firm
Date/Time: 3/30/17 15:00	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time