Camas Wastewater Treatment Plant Local Limits Sampling and Evaluation Plan

Prepared for

City of Camas, Washington

July 14, 2017

CH2M HILL Engineers, Inc.
1100 112th Avenue NE, Suite 500
Bellevue, WA 98004
(425) 453-5000

Contents

Acronyms and Abbreviations

BOD_5	5-day biochemical oxygen demand
CAS	Chemical Abstracts Service
CFR	Code of Federal Regulations
City	City of Camas
COC	chain of custody
°C	degrees Celsius
DL	detection level
Ecology	Washington Department of Ecology
EPA	U.S. Environmental Protection Agency
FOG	fats, oil and grease
gpd	gallons per day
HDPE	high-density polyethylene
MAHL	maximum allowable headworks loading
MIU	minor industrial user
mgd	million gallons per day
mg/kg	milligrams per kilogram (dry)
mg/L	milligrams per liter
mL	milliliters
ML	minimum level
NPDES	National Pollutant Discharge Elimination System
O&G	oil and grease
POC	pollutant of concern
POTW	publicly-owned treatment works
QA/QC	quality assurance/quality control
QL	quantitation level
RL	reporting level
SIU	significant industrial user
TBLL	technically-based local limits
TDS	total dissolved solids
TPH	total petroleum hydrocarbons
TSS	total suspended solids
µg/L	micrograms per liter
WWTP	wastewater treatment plant

SECTION 1

Introduction

The City of Camas (City) is required to ensure that all commercial and industrial users of the City's wastewater treatment plant (WWTP) comply with federal pretreatment regulations in 40 CFR 403, and Sections 307(b) and 308 of the Clean Water Act.

To meet these requirements, the City must develop and codify technically-based local limits (TBLL) for pollutants of concern (POCs) that may adversely affect the WWTP. TBLL are to be developed for all significant sources of industrial wastewater to the City's WWTP, per Section S6 F.1 of the City's National Pollutant Discharge Elimination System (NPDES) Permit No. WA0020249.

1.1 Purpose

This Local Limits Sampling and Evaluation Plan (also known as a local limits development plan) is required by Section S6 F.1 of the City's NPDES permit for submission to the Washington Department of Ecology (Ecology). Ecology must review and approve this plan before sampling for POCs at the WWTP can commence. The following guidance documents were used to develop this Sampling and Evaluation Plan and will be used throughout the City's TBLL development process:

- Ecology's *Guidance Manual for Developing Local Discharge Limits* (Ecology, 2011)
- Ecology's *Water Quality Program Permit Writer's Manual* (Ecology, 2015)
- The U.S. Environmental Protection Agency's (EPA) *Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program* (EPA, 1987) and *Supplemental Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program* (EPA, 1991)
- EPA's *Local Limits Development Guidance* (EPA, 2004)
- Title 40 CFR 136 and 40 CFR 122

1.2 Background

Local limits are discharge standards for conventional, nonconventional, and toxic pollutants that apply to significant industrial users (SIUs) and typically also minor industrial users (MIUs), referred to herein as commercial users or commercial enterprise. Commercial enterprise is typically subject to the same local limits as SIUs but are not subject to the same periodic monitoring requirements, and are often addressed using mandatory best management practices (BMPs) as provided for by the City's local ordinance.

As listed in the City's NPDES permit, SIUs are defined as follows:

> 1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; and
>
> 2) Any other industrial user that: discharges an average of 25,000 gallons per day (gpd) or more of process wastewater to the publicly-owned treatment works (POTW) (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic, organic or any single pollutant capacity of the POTW treatment plant; **or** is designated as such by the Control Authority [Ecology] on the basis that the industrial user has a reasonable potential for adversely

affecting the POTW's operation or for violating any pretreatment standard or requirement [in accordance with 40 CFR 403.8(f)(6)].

Ecology listed five SIUs in the City's latest (2014) NPDES permit application as significant sources of industrial wastewater. Of these five, one has subsequently closed (Heraeus Shin-Etsu [NRP LLC]). The following four remaining SIUs currently discharge to the City's WWTP under State Waste Discharge permits issued by Ecology:

1. **WaferTech** is a semiconductor integrated circuit (IC) fabrication facility subject to Categorical Pretreatment Standards under 40 CFR 469, and its discharge makes up a significant portion (16 to 27 percent) of the influent at the City WWTP. Its discharge contains very high concentrations of total dissolved solids (TDS), according to their current permit. There is also concern is that the sudden stoppage of the WaferTech discharge could create an osmotic stress for the bacteria in the City WWTP'S activated sludge.
2. **Linear Technology Corporation** (Linear Tech) is a semiconductor wafer production facility. Wastewater sources include: neutralized acid wastewater, treated hydrofluoric acid wastewater, process rinse water, gray water, reverse osmosis reject waste, condensate, fume control scrubber blowdown, cooling water, boiler blowdown, and cooling tower blowdown. Linear Tech is subject to Categorical Pretreatment Standards under 40 CFR 469 and discharges more than 200,000 gpd to the City's WWTP.
3. **Karcher North America** (Karcher NA) manufactures industrial and commercial water cleaning systems including pressure washing equipment, automatic parts washers, evaporators, and wastewater treatment/recycle systems. Because of the coating (phosphating and coloring) process, Karcher NA is a subject to Categorical Pretreatment Standards under 40 CFR 433.17, but discharges less than 7,000 gpd of wastewater to the City WWTP according to their current permit.
4. **Sharp Labs of America, Inc.** (SLA) performs research and development related to integrated circuits and Liquid Crystal Display technology. SLA generates the majority of its wastewater from air pollution control (air scrubber) equipment, according to their current permit. Cleaning, etching, stripping, anodic oxidation and polishing processes utilize chemicals such as polishing slurry, sulfuric acid, phosphoric acid, hydrogen peroxide, ammonium hydroxide, ammonium tartarate, ammonium fluoride, and hydrofluoric acid. The photodeveloping stations use tetramethylammonium hydroxide which is a surfactant containing alkaline solution. SLA is an SIU based on its request to discharge 35,500 gallons per day (gpd) of industrial wastewater, although on average the discharge is less than 15,000 gpd, according to their current permit. SLA uses processes that generate industrial wastewater similar to those in semiconductor industry, which may be subject to categorical effluent limitations (40 CFR 469). However, because SLA is a research and development facility, the Categorical Pretreatment Standards do not apply to this SIU.

No other SIUs were identified by the City through the industrial user survey completed in 2016. However, one surveyed property identified as having a high likelihood of being an industrial user has not yet responded to the survey: Bodycote Camas Heat Treatment Plant, which is identified as a metal heat treatment facility. The City is continuing to attempt to obtain the survey information from Bodycote.

In the City's current NPDES permit, Ecology identified 23 pollutants for which the City must develop TBLL. In addition to the pollutants of concern (POCs) listed below in Table 1-1, Ecology also needs the City to develop limits or allocation strategies for three treatment compatible pollutants: 5-day biochemical oxygen demand (BOD_5,) total suspended solids (TSS), and ammonia.

The current NPDES permit requires the City to develop either a concentration-based limit or a pollutant-specific loading allocation strategy protective of the maximum allowable headworks loading (MAHL) for each pollutant.

Table 1-1. Non-Treatment Compatible POCs for TBLL Development in Accordance with the City's NPDES Permit

Arsenic	Fluoride	Silver
Cadmium	Lead	Sulfate
Chromium, Hexavalent	Mercury	Total Dissolved Solids (TDS)
Chromium, Total	Molybdenum	Total Petroleum Hydrocarbons (TPH)
Copper	Nickel	Zinc
Cyanide	pH	
Fats, Oils and Grease (FOG)	Selenium	

1.3 Objectives

The goal of deriving local limits is to identify all available regulatory and safety numeric "criteria" that apply for each pollutant and then establish a maximum limit on industry that assures that all criteria are met. Criteria that are commonly used to derive TBLL include but are not limited to:

- Water quality standards
- NPDES permit limits
- Biosolids regulations for disposal
- Inhibition/interference with biological or chemical processes used by the wastewater plant to treat the waste
- Workers' health and safety (toxicity, flammability, explosivity)
- Plant capacity
- Air emission regulations

Except for workers' health and safety issues, these criteria are dependent upon how much of a given pollutant is coming into the plant at the headworks (influent) and where these pollutants end up once they enter the plant. For example, in regards to water quality standards, if 30 percent of a substance is extracted into the sludge, then the remaining concentration being discharged into the receiving stream (70 percent) is quite different than if 50 percent of the same material is extracted into the sludge. Therefore, the objective of this Sampling and Evaluation Plan is to gather the information and research grade data needed to empirically determine how the plant will either pass the material through to the receiving stream, concentrate the pollutant in the sludge or in some cases, such as cyanide, metabolize and eliminate some of the pollutant. In its simplest form, a measurement of the influent followed by a measurement of the effluent will give the pollutant's removal through simple subtraction. In practice, more sample information is required to obtain the best model and to account for factors such as inhibition of plant processes.

SECTION 2

Sampling and Evaluation Procedures

2.1 Determination of Pollutants of Concern (POCs)

Seventeen of the 23 pollutants required for local limits development in Section S6 F.1 of the City's NPDES permit will be sampled for and analyzed under this Sampling and Evaluation Plan. Any additional pollutants identified during initial screening as potential POCs will be added to this list.

Section S6 F.1 of the City's NPDES Permit No. WA0020249 requires the City to "*establish either limits or a strategy for controlling non-domestic loadings of compatible pollutants:* ***BOD, TSS, and Ammonia*** *through loading allocations, surcharges, or similar means."* These three parameters, however, will not receive testing as part of this Sampling and Evaluation Plan but will rely on existing data to establish a load allocation strategy. Also, per Ecology guidance (Ecology, 2011), development of limits for ***pH*** and ***oil and grease*** is not expected to require calculation of the available headworks loading, or how they are removed or affected across the treatment train, and thus are not included in this sampling. This plan also assumes that analysis for ***total petroleum hydrocarbons (TPH)*** is conducted using Method EPA 1664A, which is an adaptation of the tests for oil and grease. Consequently, limits for TPH will also be developed in like manner to oil and grease and independent of headworks loading, and TPH are not included in sampling under this plan.

Per Ecology's recommendation in the City's NPDES permit, initial screening for POCs will include additional pollutants listed in 40 CFR 122, Appendix J. All WWTP monitoring data, including Priority Pollutant Scans (PPS), from the past three years will be reviewed as part of this initial screening, to determine if these or any additional pollutants are present in amounts to be of concern, based on EPA guidance. In addition, each of the SIUs will be evaluated to identify chemical compounds that may be present in their discharge and that are also listed in 40 CFR 122 Appendix D, Table 4, and any pollutants identified in the SIU discharges that are toxic but not otherwise covered by available monitoring, for addition to potential POCs. The screening criteria in the EPA's *Guidance on the Selection of Pollutants of Concern* (provided here in Appendix A) will be used to determine whether any of these pollutants should be considered a POC, by applying the most stringent of the criteria for each potential POC.

2.2 Sampling Procedures

Sampling locations will include the following:

1. Influent - sampled and analyzed for 17 pollutants specified plus any additional identified POCs
2. Primary clarifier effluent - sampled and analyzed for 17 pollutants specified plus any additional identified POCs
3. Effluent - sampled and analyzed for 17 pollutants specified plus any additional identified POCs
4. Biosolids (sludge cake) – sampled and analyzed for metals only and additional identified POCs where appropriate[1]

[1] Only conservative (does not breakdown or convert to a different less toxic form) POCs will be tested for in the biosolids. Organic compounds and ionic compounds (such as sulfate or hexavalent chromium), which are non-conservative, will be omitted from biosolids analysis because the data cannot be used in a meaningful mass balance.

5. Receiving water (Columbia River) – sampled and analyzed for hardness, cyanide, molybdenum, fluoride and TDS[2]

The proposed analytes for each of these sampling locations are listed below in Table 2-1, and the proposed sampling timing is provided in Table 2-2. Samples for effluent will be taken 24 hours after influent samples to account for plant retention (see Table 2-2). A process flow diagram for the City's WWTP is provided here in Appendix C for reference.

Domestic discharge samples are not recommended for sampling. This is because sampling at any single point in the collection system results in sampling a small population of contributing flows. In addition, sampling from smaller waste streams can lead to difficulty in obtaining a representative sample. Areas of high turbulence that are needed to obtain representative samples are usually not present in these small lines and non-representative samples are taken due to sample stratification. For this reason, the actual domestic value that will be used in the calculations is the average influent concentration. This method will be referred to as the domestic approximation. At the influent, all flows in the system are fully mixed and sampling can be conducted in an area of high turbulence so that the most representative sample can be taken of what the plant is actually receiving. The use of the influent concentrations represents a conservative assumption because the industrial flow is included and counted toward the domestic contribution, adding an additional safety factor. The last paragraph of Section 4.2.1 of the EPA's *Local Limits Development Guidance* (EPA, 2004) states that sampling at various points in the system "may not accurately represent the background levels" and uses the influent as a check on how much inaccuracy this approach may introduce. During the initial screening, if any industry is determined to be providing a significant proportion of a POC, that POC will be sampled for at the industrial point of discharge each sampling day, and the measured industrial contribution will be accounted for in the domestic approximation.

[2] The City is currently conducting a receiving water study that consists of four quarterly background water quality samples beginning in the fall of 2016 and measuring conventional pollutants and metals just upstream of the City's discharge to the Columbia River. The final results will be reported to Ecology by December 1, 2017. Data from this study will be used in development of the TBLL. However, because these data will not include cyanide, molybdenum, fluoride, or TDS, these analytes will be sampled for in the receiving water and analyzed as part of this Sampling and Evaluation Plan.

Table 2-1. Proposed Sampling Analytes and Sampling Locations

Analyte & CAS Registry No.	Influent	Primary Clarifier Effluent	Effluent	Biosolids	Receiving Water
Antimony, Total (7440-36-0)	✓	✓	✓	✓	
Arsenic, Total (7440-38-2)	✓	✓	✓	✓	
Cadmium, Total (7440-43-9)	✓	✓	✓	✓	
Chromium, Total (7440-47-3)	✓	✓	✓	✓	
Chromium, Hexavalent (18540-29-9)	✓	✓	✓		
Copper, Total (7440-50-8)	✓	✓	✓	✓	
Lead, Total (7439-92-1)	✓	✓	✓	✓	
Mercury, Total (7439-97-6)	✓	✓	✓	✓	
Molybdenum, Total (7439-98-7)	✓	✓	✓	✓	✓
Nickel, Total (7440-02-0)	✓	✓	✓	✓	
Selenium, Total (7782-49-2)	✓	✓	✓	✓	
Silver, Total (7440-22-4)	✓	✓	✓	✓	
Zinc, Total (7440-66-6)	✓	✓	✓	✓	
Cyanide, Total (57-12-5)	✓	✓	✓		✓
Fluoride (16984-48-8)	✓	✓	✓	✓	✓
Total Dissolved Solids (TDS)	✓	✓	✓		✓
Sulfate (as mg/L SO_4)	✓	✓	✓		

2.2.1 Sampling Timing and Schedule

Sampling may be scheduled at the convenience of the WWTP staff with the following three restrictions:

1. Sampling must be conducted for three consecutive days, not including one day for initial setup.

2. Sampling must be conducted during a representative time period. For example, the winter holiday season will have high strength domestic waste and usually have lower strength industrial waste loading. Therefore, the samples would not be not representative of a normal condition. Local culture and holidays will also have an influence on this factor.

3. Weather is an important consideration for scheduling the sampling period. Sampling should occur in a time period where precipitation is low enough that flow does not increase or in very wet climates at a time when the flow is near its annual average. Inflow and infiltration will increase the concentration of some metals and dilute others. The rate of removal by the plant is effected by the original influent concentration. Thus, a precipitation event can render the sampling/testing events ineffective. If the weather on the selected sampling period is predicted to be stormy and could potentially interfere, the sampling should be rescheduled.

Table 2-2. Proposed Sampling Timing

	Day 0	Day 1	Day 2	Day 3
Influent	Setup	✓	✓	
Primary Clarifier Effluent	Setup	✓	✓	
Effluent		Setup	✓	✓
Biosolids			Setup	✓
Receiving Water	One grab sample any time during the 2-day sampling period for the effluent (Days 2 and 3).			

2.2.2 Sample Handling Protocol

Clean sampling methods (modified as needed for composite samples) are to be used for sampling.

A written record of sampling activities and field observations will be maintained in a bound field notebook. At a minimum, field notebooks will contain the following information:

- Date, time, parameter to be measured, and location for each sample collected
- Type of sample being collected
- Scheduled analyses for each sample collected
- Field parameter measurements
- Names of sampling personnel
- Deviations from the procedures described in this plan
- Daily signatures for each person making notebook entries
- Any relevant observations of sampling conditions or circumstances

Sample labels for all sample containers must be filled out in indelible, waterproof ink. The label must be moisture-proof to withstand immersed conditions. The following information will be recorded on the sample label:

- Facility name
- Sample location
- Date and time of collection
- Sample type (grab or composite)
- Sample matrix
- Requested analysis

- Preservative added, if any
- Name of sampling personnel

Table 2-3 below summarizes the sample types, containers, required preservation, and maximum holding time for each sample. The selected laboratory will provide all sampling bottles and chemical preservatives.

Table 2-3. Required Containers, Preservation, and Holding Times[1]

Analyte	Sample Type	Container	Preservation	Maximum Holding Time
Influent, Primary Clarifier Effluent, Effluent, and Receiving Water Samples				
Total Recoverable Metals (except mercury and hexavalent chromium), Total Hardness	Composite	Polyethylene, Teflon®, Glass	HNO_3 to pH<2; Cool, <6°C	6 months (180 days)
Mercury	Grab	Polyethylene, Glass with Teflon® lined lid	HNO_3 to pH<2; Cool, <6°C	28 days
Hexavalent Chromium	Composite	Polyethylene, Teflon®, Glass	NaOH, $[NH_4]_2SO_4$ to pH 9.3-9.7; Cool, <6°C	28 days
Cyanide	Grab	Polyethylene, Teflon®, Glass	NaOH to pH >10, reducing agent if oxidizer present; Cool, ≤6 °C,	14 days
Fluoride	Composite	Polyethylene	None required	28 days
Total Dissolved Solids	Composite	Glass	Cool, <6°C	24 hours
Sulfate	Composite	Polyethylene, Teflon®, Glass	Cool, <6°C	28 days
Biosolids Samples				
Metals (except mercury)	Grab[2]	Glass	Cool, <6°C	6 months (180 days)
Mercury	Grab[2]	Glass	Cool, <6°C	28 days
Fluoride	Grab[2]	Glass	Cool, <6°C	28 days

[1] Reference: 40 CFR 136, Table II

[2] Composite sludge samples may be taken as several grab samples from different portions of the sludge mass.

Results of this sampling must be legally defensible. As such, a thorough Chain of Custody (COC) report will be initiated starting from the field as soon as the sample is collected and completed, and will continue to add information while on its route for delivery to the contract lab. See Appendix B for a sample COC form. Sample bottles shall be prepared and provided by the lab.

Composite sampling will be of 24-hour duration and in no case contain less than 12 aliquots. Additional aliquots over the 24-hour period is preferable and the composite will be flow-weighted where flow measurements are available (expected to be influent and effluent). Otherwise, composite samples will be time-weighted.

When placing a sampler, the sample line should be placed into an area of high turbulence in order to draw a representative sample. The sampler should be set up with all new tubing pre-rinsed with 1:1 nitric acid/deionized water.

The internal temperatures of the auto samplers will be kept at or below the required 6 degrees Celsius (°C). All samples will be immediately labeled and placed on ice before shipment preparation. Samples will be kept at or below 6°C at all times. Prior to shipment, the samples will be packed on ice in laboratory supplied shipping containers. A final temperature reading will be taken and recorded on the COC, and the container is then sealed with shipping tape and a custody seal. The COC form will be completed and reviewed by a second person prior to shipping or delivery.

Cyanide samples will consist of at least four separate grab samples to be collected in separate sample bottles and composited into a single sample at the laboratory. Each set of grab samples will be reported as a single result for that location for each day.

Mercury samples will follow the clean hand/dirty hand protocol as closely as possible (the procedure can be requested from laboratory as part of the suppling sample kits). Mercury should be a grab sample because the method of analysis is sensitive enough that it can detect mercury from the surrounding atmosphere.

Receiving water sampling in the Columbia River will take place from the south terminus of docks protecting the Parkers Landing marina, which is approximately 250 feet from the nearest shoreline and 3,500 feet upstream of the Camas WWTP outfall diffuser. This is same location currently used in the receiving water study (in-progress). Prior to collecting river samples, a clean plastic work space will be laid out on dock. Sample bottles will remain covered in plastic bags inside the plastic lined ice chests. The clean hands work will be responsible for handling only the sample bottle, and all other activities will be conducted by the dirty hands work. Sampling personnel will wear talc-free, silicone-based sampling gloves and if any sampler observes potential contact with a metal surface or unshielded area, gloves will be replaced immediately.

Sampling will be conducted using a 1-quart glass jar that will be pre-cleaned (acid-washed and rinsed with metals-free deionized water) and inside a clean plastic bag prior to sampling. The water sampling jar will be lowered into the surface waters of the flowing river by hand to fill. The river water will be poured directly into the sample bottles and repeated water sample collections will be collected in the glass jar to fill all containers. This sampling technique will reduce handling and minimize any potential for sample contamination. All sample containers will be placed back into plastic bags and sealed, then placed in a cooler on ice. All empty sample containers should be double-bagged when received from the laboratory, and after sampling each sample container will be double-bagged and transported in a clean cooler to prevent contamination.

Biosolids sampling and analysis will be conducted in accordance with approved methods. The biosolids sample shall be collected after final treatment but before any blending or composting occurs. Two wide mouth glass jars of biosolids will be collected on the third day of sampling. Cyanide will not be analyzed for the biosolids samples because it is not a conservative pollutant or covered by the 40 CFR 503 regulations. A clean stainless steel laboratory spatula will be used to collect small (1-2 tablespoon) quantities for each aliquot. Each sample jar will be labeled with COC number, location, date, time, and analyses to be conducted. The COC will specify that results are to be reported as mg/dry kg “dry sludge” and percent solids will be reported along with all analyses.

2.3 Analytical Methods

Prior to commencing sampling, the City WWTP staff must ensure that the lab selected to perform the analyses certifies that the methods in Table 2-4 below will be exclusively used and include a statement that reports will contain not only the reporting limit (RL) but will also include the quantitation level (QL),

also known as the minimum level [ML]). The ML is used in certain instances where surrogates are appropriate, to determine the lowest values that can be used in the EPA *Local Limits Guidance* (EPA, 2004). The lab must also provide prepared sample bottles that have been properly acid rinsed and have the sample preservative added prior to sampling.

The analytical methods for TBLL development are critical. Although less expensive methods are available, the data generated with these methods can be of little or even no value in terms of determining local limits. These cheaper methods are also no longer accepted by the EPA. Consequently, for this TBLL sampling, the tests will be conducted using the methods and minimum detection and quantitation levels shown below in Table 2-4, which are from Ecology's *Permit Writer's Manual,* Chapter 6 (Ecology, 2015) and are also those recommended in Appendix A of the City's NPDES permit and approved under 40 CFR 136. Deviations from the methods listed below in Table 2-4 will require prior written approval from Ecology.

Table 2-4. Required Analytical Methods

Analyte & CAS Registry No.	Required Analytical Method	Required Minimum Detection Level (DL)[1]	Required Minimum Quantitation Level (QL)[2]
Antimony, Total (7440-36-0)	200.8	0.3 µg/L	1.0 µg/L
Arsenic, Total (7440-38-2)	200.8	0.1 µg/L	0.5 µg/L
Cadmium, Total (7440-43-9)	200.8	0.05 µg/L	0.25 µg/L
Chromium, Total (7440-47-3)	200.8	0.2 µg/L	1.0 µg/L
Chromium, Hexavalent (Dissolved) (18540-29-9)	218.7 or SM3500-Cr EC	0.3 µg/L	1.2 µg/L
Copper, Total (7440-50-8)	200.8	0.4 µg/L	2.0 µg/L
Lead, Total (7439-92-1)	200.8	0.1 µg/L	0.5 µg/L
Mercury, Total (7439-97-6)	1631E or 245.7	0.0002 µg/L	0.0005 µg/L
Molybdenum, Total (7439-98-7)	200.8	0.1 µg/L	0.5 µg/L
Nickel, Total (7440-02-0)	200.8	0.1 µg/L	0.5 µg/L
Selenium, Total (7782-49-2)	200.8	1.0 µg/L	1.0 µg/L
Silver, Total (7440-22-4)	200.8	0.04 µg/L	0.2 µg/L
Zinc, Total (7440-66-6)	200.8	0.5 µg/L	2.5 µg/L
Cyanide, Total (57-12-5)	335.4 or 4500-CN D	5 µg/L	10 µg/L
Fluoride (16984-48-8)	SM4500-F E	25 µg/L	100 µg/L
Total Dissolved Solids (TDS)	SM2540-C		20 mg/L
Sulfate (as mg/L SO_4)	SM4110-B		200 µg/L
Total Hardness	SM2340-B		200 µg/L as $CaCO_3$

[1] Detection Level (DL) is defined as the minimum concentration of an analyte that can be measured and reported with a 99 percent confidence that the analyte concentration is greater than zero as determined by the procedure given in 40 CFR 136, Appendix B.

[2] Quantitation Level (QL) is also known as the Minimum Level of Quantitation (ML), and is defined as the lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to

the concentration of the lowest calibration standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures.

2.4 Quality Assurance/Quality Control (QA/QC)

2.4.1 Field and Laboratory Quality Control

QA/QC samples are important to evaluate sampling procedures (equipment blank) and sample representativeness (field duplicates).

- One trip blank sample for grab samples will be collected each quarter by pouring metals-free distilled water into sample bottles for analysis of all parameters.
- One equipment blank sample will be collected each quarter. These samples will be collected using distilled water which has been collected using the same sample equipment used to collect samples in the field.
- A duplicate sample will be collected at one site during each of the four sampling events and analyzed for all parameters.

The laboratory will perform all split sampling, duplicates, matrix spikes, and matrix spike duplicates as required by 40 CFR 136.

2.5 Data Handling

All data are to be reported along with the method detection limit (MDL), minimum level (ML)/quantitation level (QL), and reporting level (RL). All data with results above the ML will be used to develop local limits; surrogate data using one-half of the ML will be used where available for the influent, but not effluent, per EPA guidance (EPA, 2004).

All of the complete laboratory reports and data compilations will be included in the final submittal to Ecology (results of local limits monitoring per NPDES Permit Section S6.F.2) in February 2019.

SECTION 3

References

Washington Department of Ecology (Ecology). 2011. *Guidance Manual for Developing Local Discharge Limits.* Publication no. 11-10-056. Available at http://www.ecy.wa.gov/biblio/1110056.html.

Ecology. 2015. *Water Quality Program Permit Writer's Manual.* Publication no. 92-109, revised January 2015. Available at https://fortress.wa.gov/ecy/publications/SummaryPages/92109.html.

U.S. Environmental Protection Agency (EPA).1987. *Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program*. EPA 833-B-87-202. December.

EPA. 1991. *Supplemental Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program.* Available at https://www3.epa.gov/npdes/pubs/owm0013.pdf

EPA. 2004. *Local Limits Development Guidance.* EPA 833-R-04-002A. July.

Title 40 Code of Federal Regulations (CFR): Protection of Environment. Available at https://www.ecfr.gov

Appendix A
Guidance on the Selection of Pollutants of Concern (EPA, 1987)

Guidance on the Selection of Pollutants of Concern

Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program, EPA 833-B-87-202, December 1987

Also, EPA guidance directs that a toxic pollutant may be classified as a POC if it meets the following screening criteria:

- *The maximum concentration of the pollutant in a grab sample from the POTWs influent is more than half the inhibition threshold for the biological process; or the maximum concentration of the pollutant in a 24-hour composite sample from the POTWs influent is more than one-fourth of the inhibition threshold for the biological process.*
- *The maximum concentration of the pollutant in the POTWs influent is more than 1/500* of the applicable sludge criteria.*
- *The maximum concentration of the pollutant in the POTWs influent is more than the maximum allowable effluent concentration.*
- *The maximum concentration of the pollutant in the POTW's effluent is more than one half the allowable effluent concentration.*
- *The maximum concentration of the pollutant in the POTW's sludge is more than one half of the allowable sludge concentration.*

The maximum measured concentration of the pollutant was greater than the ACGIH screening level for fume toxicity.

Appendix B
Sample Chain of Custody Form

ALS Environmental

CHAIN OF CUSTODY
49784

001

SR#_____

COC Set____of____

COC#_____

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

Project Name	Project Number:
Project Manager	
Company	
Address	
Phone #	email
Sampler Signature	Sampler Printed Name

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	14D	28D		180D							Remarks
						335.4 / CN T	1664A / OG HEM	7470A / Hg T	200.8 / Metals T	1	2	3	4	5		
1.																
2.																
3.																
4.																
5.																
6.																
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

___ 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:

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

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
Firm	Firm	Firm	Firm	Firm	Firm
Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

Appendix C
Camas WWTP Process Flow Diagram