Wastewater and Reclaimed Water Quality Characterization (Task 1.3)

LOTT Clean Water Alliance
Reclaimed Water Infiltration Study

Technical Memorandum

February 7, 2017

Budd Inlet Reclaimed Water Plant

Martin Way Reclaimed Water Plant

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Acronyms and Abbreviations

AS	Activated Sludge
BDOC	Biodegradable Dissolved Organic Carbon
BIRWP	Budd Inlet Reclaimed Water Plant
BITP	Budd Inlet Treatment Plant
BNR	Biological Nutrient Removal
BOD	Biochemical Oxygen Demand
CAS	Conventional Activated Sludge
DOC	Dissolved Organic Carbon
DPB	Disinfection Byproduct
EBNR	Enhanced Biological Nutrient Removal
EPA	United States Environmental Protection Agency
HAA	Haloacetic Acid
HRT	Hydraulic Retention Time
LOTT	LOTT Clean Water Alliance
MBR	Membrane Bioreactor
MCL	Maximum Contaminant Level
MF	Microfiltration
mgd	Million Gallons per Day
mg/L	Milligrams per Liter (or parts per million, ppm)
MPN	Most Probable Number
MRL	Minimum Reporting Limit
MS/MSD	Matrix Spike / Matrix Spike Duplicate
MWRWP	Martin Way Reclaimed Water Plant
ng/L	Nanograms per Liter (or parts per trillion, ppt)
N/A	Not Applicable
NTU	Nephelometric Turbidity Units
PBDE	Polybrominated Diphenyl Ether
PFC	Perflouorinated Compound
RPD	Relative Percent Difference
SRT	Solids Retention Time
TM	Technical Memorandum
TOC	Total Organic Carbon
TSS	Total Suspended Solids
TTHM	Total Trihalomethane
µg/L	Micrograms per Liter (or parts per billion, ppb)

1.0 Introduction

1.1 Background

The LOTT Clean Water Alliance (LOTT) provides services to treat and manage wastewater for the urban areas of Lacey, Olympia, and Tumwater in Thurston County, Washington (at the southern end of Puget Sound). Since 2006, LOTT has also produced reclaimed water, which is used for irrigation and other non-drinking purposes, or is sent to infiltration basins where it recharges groundwater. The long-range plan for meeting future wastewater needs has been centered on expanding reclaimed water production and groundwater recharge.

Recently questions about infiltration of reclaimed water have been raised, including concerns regarding the fate and possible health and ecological impacts of certain types of chemicals that may remain in reclaimed water after treatment. These chemicals, referred to herein as "residual chemicals", include pharmaceuticals, personal care products, and other organic chemicals typically found at very low concentrations in reclaimed water.

To address these questions, LOTT is engaged in a multi-year Reclaimed Water Infiltration Study (Study or RWIS). The purpose of the Study is to improve the understanding of which residual chemicals exist in LOTT's reclaimed water and in the local environment, how reclaimed water that is infiltrated into shallow groundwater interacts with soils and local groundwater, and what happens to these residual chemicals over time in the environment. The findings of the study will be used by LOTT and the wider community to make the most appropriate choices for reclaimed water management and protection of public health and the environment.

1.2 Task Goal

One of the Study tasks (Task 1.3) is to characterize the types of chemicals that are present in wastewater and the quality of produced reclaimed water. The goal of this task is to determine and quantify what organic and inorganic compounds are present in LOTT's wastewater, with a focus on determining what residual chemicals remain in the reclaimed water after treatment at LOTT's treatment plants. This information will be used to assess treatment system effectiveness, inform subsequent sampling efforts, compare reclaimed water quality with that of other waters examined in the study (e.g., groundwater and surface water), and ultimately it will be factored into the human health and ecological risk assessment.

1.3 Summary of Approach

Quarterly sampling was conducted between November 2014 and October 2015, at LOTT's two reclaimed water treatment facilities: the Budd Inlet Reclaimed Water Plant (BIRWP) and the Martin Way Reclaimed Water Plant (MWRWP). The characterization was focused on influent wastewater and reclaimed water, but also involved sampling of LOTT's secondary effluent, which is produced at the Budd Inlet Treatment Plant (BITP) and is discharged into Puget Sound. Similarly, reclaimed water entering and exiting the constructed wetlands at LOTT's Hawks Prairie Ponds and Recharge Basins site was also analyzed.

1.4 Organization of Technical Memorandum

This technical memorandum documents the methodology and findings of Task 1.3. The document is organized as follows:

- Section 2 offers context by providing a brief overview of the Washington State regulatory framework that governs the permitting and use of reclaimed water, and the range of treatment processes used to produce reclaimed water.
- Section 3 describes LOTT treatment facilities.
- Section 4 identifies the methodology used to conduct the wastewater and reclaimed water sampling effort.
- Section 5 provides the results of the sampling.
- Sections 6 and 7 provide discussion of the results and conclusions, respectively.

2.0 Reclaimed Water Regulations and Treatment Overview

2.1 Washington State Reclaimed Water Regulations

Implementation of reclaimed water programs in the State of Washington is currently regulated jointly by the Departments of Ecology (Ecology) and Health (DOH). The reclaimed water permitting process is influenced by the *Water Reclamation and Reuse Standards*, which were established jointly by Ecology and DOH in 1997, under Revised Code of Washington (RCW) 90.46 (Reclaimed Water). The standards are not rules, but are used as guidance for best management practices and development of reclaimed water permit conditions. State guidance regarding reuse is also presented in Ecology's *Criteria for Sewage Works Design*. Washington is currently in the process of developing formal reclaimed water regulations. If adopted, these would take the form of Washington Administrative Code (WAC) 173-219, generally referred to as the "Reclaimed Water Rule".

The Water Reclamation and Reuse Standards establish requirements for four classes of reclaimed water with respect to both treatment technique and effluent quality, as described in **Table 2-1**. The standards define which classes of reclaimed water can be used for various reuse applications and define the control measures that must be implemented to protect public health. Class A water, which has the most stringent treatment requirements, can be used for all allowed reuse applications. By contrast, Class D water may be used for only selected reuse applications where strict controls are in place to minimize human contact with the reclaimed water.

Additional treatment requirements must be met if the produced reclaimed water is to be used for certain purposes. For example, for use in groundwater recharge applications via surface percolation, additional steps must be taken to reduce nitrogen prior to the final use of the water.

LOTT currently produces Class A reclaimed water, including nitrogen removal, at its two treatment facilities.

Table 2-1. Treatment and Effluent Quality Requirements for Reclaimed Water

Water Quality Parameter	Class A Oxidized, coagulated, filtered, disinfected	Class B Oxidized, disinfected	Class C Oxidized, disinfected	Class D Oxidized, disinfected
Total Coliform, No./100 ml				
7-day Median	2.2	2.2	23	N/A
Single Sample	23	23	240	240
Turbidity, NTU				
Monthly Average	2	N/A	N/A	N/A
Single Value	5	N/A	N/A	N/A
BOD, mg/L				
Monthly Average	30	30	30	30
TSS, mg/L				
Monthly Average	30	30	30	30
Dissolved Oxygen, mg/L				
Daily Minimum	>0	>0	>0	>0

BOD = Biochemical Oxygen Demand; TSS = Total Suspended Solids; NTU = Nephelometric Turbidity Units; N/A = Not Applicable

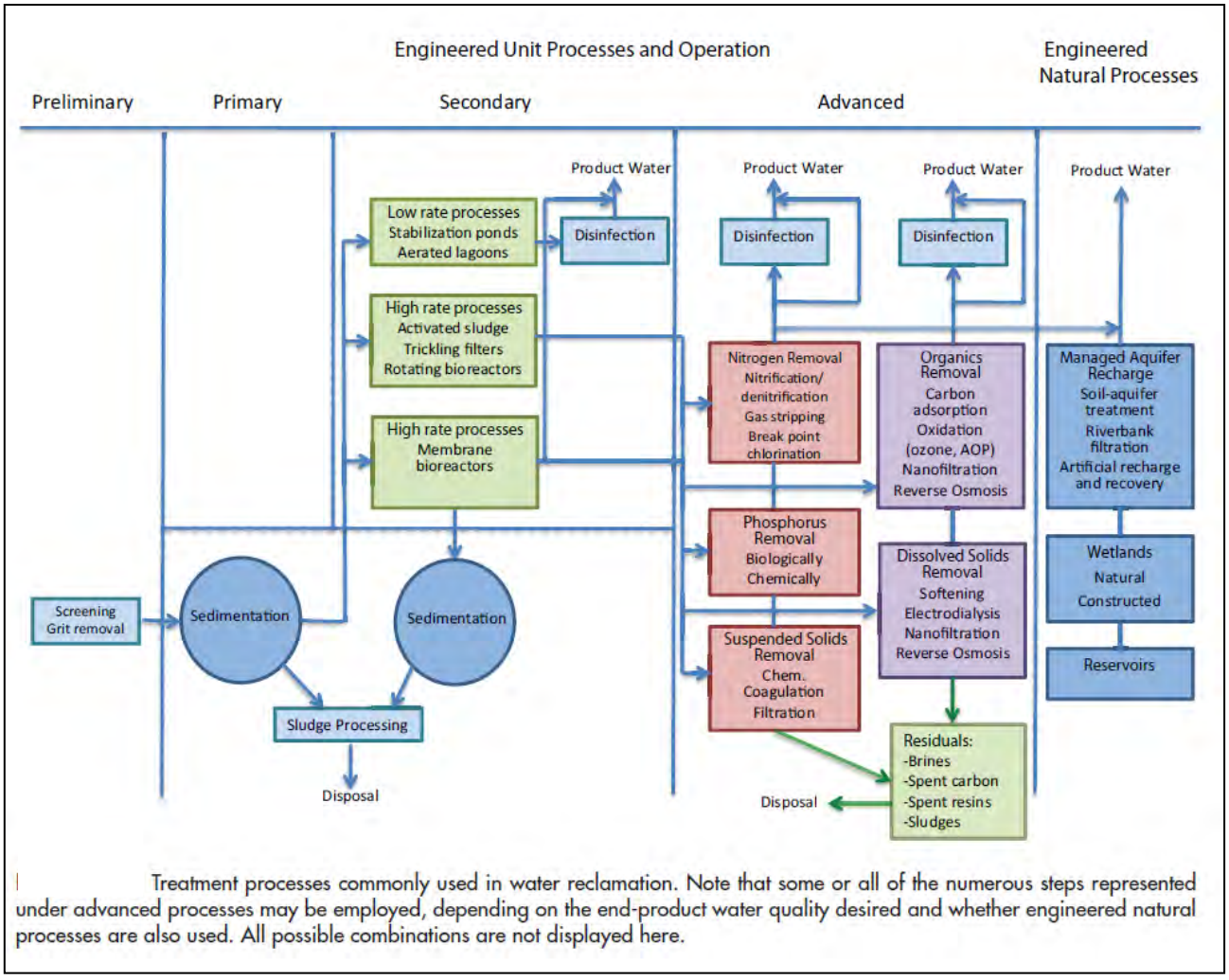
Source: Washington State Water Reclamation and Reuse Standards (September 1997), Definitions and Section 1 – Table 2 (pg 36).

2.2 Reclaimed Water Treatment Processes

There are many combinations of processes used in wastewater treatment and reclamation to produce the qualities of reclaimed water described in Section 2 that are acceptable (per established regulatory standards) for the various uses or disposition of the resultant product water. A summary of those various combinations is provided in another technical memorandum prepared for the Study, referred to as the "State of the Science" (HDR 2013). **Figure 2-1** provides a summary of the most commonly employed processes.

Key treatment terms used in the wastewater and reclaimed water industry are:

- Preliminary Treatment. This is the screening of large solid material and removal of grit.
- Primary Treatment. Removal of material that readily settles or floats.
- Secondary Treatment. Removal of suspended solids and dissolved organic matter, and the destruction of pathogens.
- Advanced Treatment. This is a broad term referring to a range of processes, as depicted on **Figure 2-1**, that target removal of nutrients and organic compounds, reduction of total dissolved solids (TDS), or provision of additional barriers to pathogens. Examples of advanced treatment include membrane filtration and advanced oxidation (e.g., various combinations of ultraviolet light, ozone, and hydrogen peroxide).



Treatment processes commonly used in water reclamation. Note that some or all of the numerous steps represented under advanced processes may be employed, depending on the end-product water quality desired and whether engineered natural processes are also used. All possible combinations are not displayed here.

Figure 2-1. Summary of Water Reclamation Treatment Processes

Source: NRC 2012 (Figure 4-1).

2.3 Typical Treatment Performance

The treatment processes summarized above have ranges of effectiveness regarding the removal of various contaminants. **Table 2-2** provides a summary of typical water quality after various levels of treatment.

Table 2-2. Summary of Reported Ranges of Reclaimed Water Quality after Treatment

Constituent	Units	Untreated Wastewater	Range of Effluent Quality After Indicated Treatment				
			Conventional Activated Sludge (CAS)	CAS with Filtration	CAS with Biological Nutrient Removal (BNR)	CAS with BNR and Filtration	Membrane Bioreactor (MBR)(1)
Total suspended solids (TSS)	mg/L	120-400	5-25	2-8	5-20	1-4	<2
Total organic carbon (TOC)	mg-C/L	80-260	10-40	8-30	8-20	1-5	0.5-5
Total nitrogen	mg-N/L	20-70	15-35	15-35	3-8	2-5	<10[a]
Total phosphorus	mg-P/L	4-12	4-10	4-8	1-2	≤2	<0.3[b]-5
Turbidity	NTU	N/A	2-15	0.5-4	2-8	0.3-2	≤1
Volatile organic compounds (VOCs)	µg/L	<100->400	10-40	10-40	10-20	10-20	10-20
Trace constituents	µg/L	10-50	4-40	5-30	5-30	5-30	0.5-20
Total coliforms	No./100 mL	10^6-10^9	10^4-10^5	10^3-10^5	10^4-10^5	10^4-10^5	<100
Protozoan cysts and oocysts	No./100 mL	10-10^4	10-10^2	0-10	0-10	0-1	0-1
Viruses	PFU/100 mL	10-10^4	10-10^3	10-10^3	10^1-10^3	10-10^3	1-10^3

Source: NRC 2012 (Table 3-2).

NOTE: None of the treatments in the table include disinfection.

(1) Reflects combination of activated sludge with microfiltration processes.

[a]With anoxic zone.

[b]With coagulant.

At LOTT facilities, the BIRWP employs CAS with BNR and Filtration, whereas the MWRWP employs MBR.

N/A = Not Applicable

Several studies have examined the efficacy of various reclaimed water treatment processes in removing residual chemicals (Snyder 2007, Stephenson 2007, Miege 2008). No process is capable of completely removing all studied residual chemicals from treated wastewater. This is illustrated in **Table 2-3**, which provides a summary of removal efficiencies of various treatment processes for select residual chemicals. Note that the efficiencies presented in this table are for individual treatment processes; they do not represent efficiencies of combined unit processes.

Most biological treatment processes can effectively reduce the majority of residual chemicals to low concentrations. A frequently used industry goal or benchmark is the removal of residual chemicals by a minimum of 80%. Studies have shown that the operating conditions of typical biological wastewater treatment facilities play an important factor in achieving these removal efficiencies for residual chemicals. It has been observed that generally an increase in solids retention time (SRT), or the time in which activated sludge solids (i.e., the materials containing the microorganisms responsible for the biodegradation processes in wastewater treatment) remain in the treatment process, correlates with an increase in removal efficiencies (Stephenson 2007). This is due to longer contact times between the microorganism and the chemicals which they degrade through metabolic and co-metabolic processes.

The concentrations of many residual chemicals can be reduced by 80% or more with treatment SRTs of 5-15 days, with some requiring an SRT greater than 30 days to achieve 80% removal.

Longer SRTs are typically associated with treatment facilities that are designed to achieve biological nutrient removal (BNR), which is the use of the biological treatment process to remove nitrogen or phosphorus (Lubliner 2010).

Table 2-3. Summary of Residual Chemical Removal Efficiencies of Various Treatment Processes

Treatment	Percent Removal										
	B(a)p	Antibiotics[1]	Pharmaceuticals					Hormones		Fragrance	NDMA
			DZP	CBZ	DCF	IBP	PCT	Steroid[2]	Anabolic[3]		
Secondary (conventional activated sludge)	nd	10–50	nd	–	10–50	>90	nd	>90	nd	50–90	–
Soil aquifer treatment	nd	nd	nd	25–50	>90	>90	>90	>90	nd	>90	>90
Aquifer storage	nd	50–90	10–50	–	50–90	50–90	nd	>90	nd	–	–
Microfiltration	nd	<20	<20	<20	<20	<20	<20	<20	nd	<20	nd
Ultrafiltration/ powdered activated carbon (PAC)	nd	>90	>90	>90	>90	>90	nd	>90	nd	>90	>90
Nanofiltration	>80	50–80	50–80	50–80	50–80	50–80	50–80	50–80	50–80	50–80	nd
Reverse osmosis	>80	>95	>95	>95	>95	>95	>95	>95	>95	>95	25–50
PAC	>80	20–>80	50–80	50–80	20–50	<20	50–80	50–80	50–80	50–80	nd
Granular activated carbon	nd	>90	>90	>90	>90	>90	nd	>90	nd	>90	>90
Ozonation	>80	>95	50–80	50–80	>95	50–80	>95	>95	>80	50–90	50–90
Advanced oxidation	nd	50–80	50–80	>80	>80	>80	>80	>80	>80	50–80	>90
High-level ultraviolet	nd	20–>80	<20	20–50	>80	20–50	>80	>80	20–50	nd	>90
Chlorination	>80	>80	20–50	–<20	>80	<20	>80	>80	<20	20–>80	–
Chloramination	50–80	<20	<20	<20	50–80	<20	>80	>80	<20	<20	nd

(Source: USEPA 2010)

B(a)p = benz(a)pyrene; CBZ = carbamazepine, DBP = disinfection by-product; DCF = diclofenac; DZP = diazepam; IBP = ibuprofen; NDMA=N-nitrosodimethylamine; nd = no data; PAC = powdered activated carbon; PCT = paracetamol.

[1] erythromycin, sulfamethoxazole, triclosan, trimethoprim

[2] ethynylestradiol; estrone, estradiol and estriol

[3] progesterone, testosterone

For LOTT facilities, the BIRWP employs Secondary, Ultraviolet, and Chlorination treatment processes; whereas the MWRWP employs Secondary, Microfiltration, and Chlorination treatment processes.

3.0 LOTT Treatment Plants

3.1 General Overview

LOTT provides wastewater treatment and reclaimed water production services for the cities and urban growth areas of Lacey, Olympia, and Tumwater. The current service area is approximately 52,000 acres in size, with a residential population of roughly 172,000 and an employment population of 117,000 (LOTT 2015). The majority of sewer connections are residential, with commercial and institutional connections including colleges, hospitals, medical facilities, and nursing homes. There are very few industrial connections, with 12 customers currently permitted through LOTT's industrial pretreatment program.

LOTT operates two wastewater treatment facilities. The overall flow of wastewater and reclaimed water, including the connectivity between the two facilities, is depicted on **Figure 3-1**.

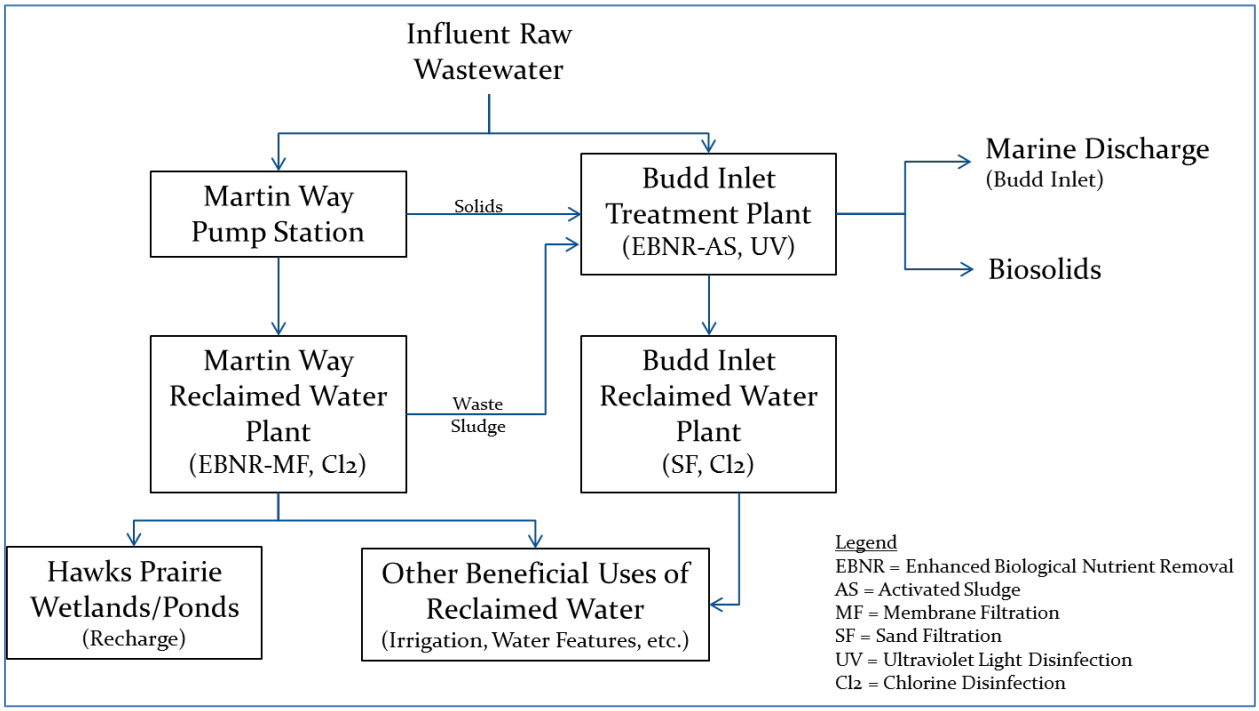


Figure 3-1. LOTT Wastewater and Reclaimed Water Flow Schematic.

3.2 Budd Inlet Treatment Plant and Reclaimed Water Plant

The Budd Inlet Treatment Plant (BITP), LOTT's largest wastewater treatment facility, is located in downtown Olympia. The treatment process at the BITP is summarized in **Figure 3-2**, and consists of primary sedimentation, secondary treatment via an activated sludge biological process, and ultraviolet disinfection. The secondary process includes biological nutrient removal of nitrogen, which occurs generally from April to October, to prevent nitrogen from supporting excessive algae growth after the treated water is discharged into marine waters in

Budd Inlet. Nitrogen removal is accomplished by internal recycling of wastewater where nitrification and denitrification occurs in aerated and anaerobic zones.

In 2015, the BITP treated an average influent wastewater flow of 11.7 million gallons per day (mgd), and discharged an average flow of 10.2 mgd of final effluent (treated to secondary standards) to Budd Inlet.

A portion of the final effluent from the BITP is routed through additional treatment to meet Class A reclaimed water quality standards. The additional treatment processes are referred to as the Budd Inlet Reclaimed Water Plant (BIRWP). This treatment includes chemical addition and filtration through single-stage, continuous backwashing, upflow sand filters, and additional disinfection with chlorine. The reclaimed water is used for a variety of uses such as landscape irrigation, toilet flushing, and outdoor water features at multiple locations in the downtown Olympia area, as well as for irrigation of the Tumwater Valley Municipal Golf Course. In 2015, the BIRWP produced an average of 0.5 mgd of reclaimed water. The facility is designed to produce up to 1.5 mgd of reclaimed water.

The BITP and BIRWP operate under National Pollutant Discharge Elimination System (NPDES) and Reclaimed Water permit number WA0037061.

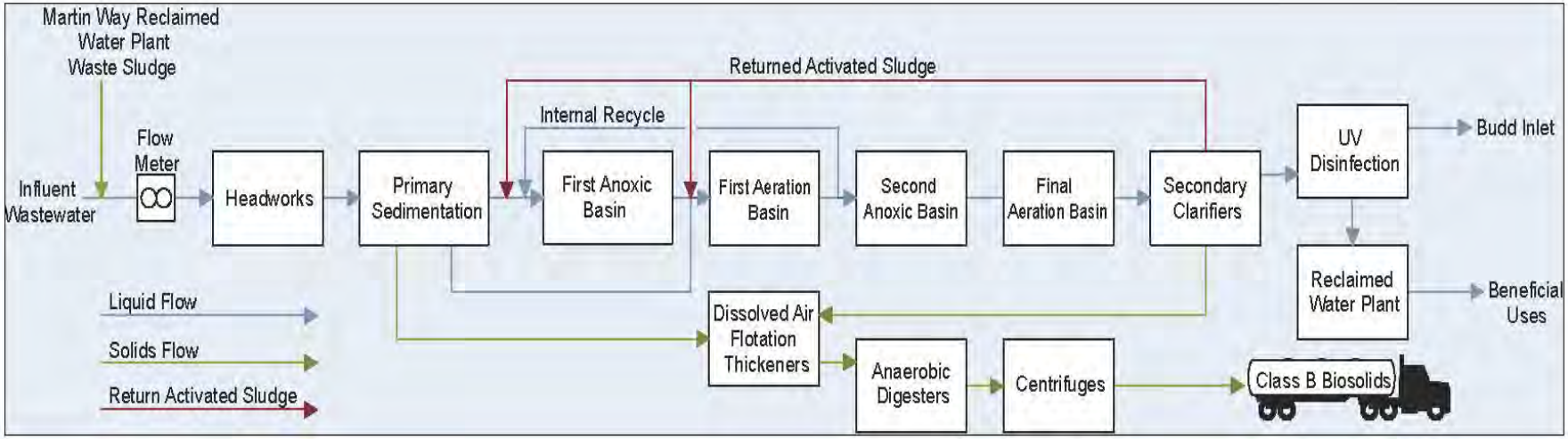


Figure 3-2. Budd Inlet Treatment Plant and Reclaimed Water Plant Process Schematic

(1) Source: Lubliner 2010.

3.3 Martin Way Reclaimed Water Plant

The Martin Way Reclaimed Water Plant (MWRWP) is a satellite reclaimed water facility that has produced reclaimed water since 2006. In its current configuration, it can generate up to 2.0 mgd of Class A reclaimed water, but is currently limited in capacity by the rate of influent raw wastewater flow, which averaged 1.3 mgd in 2015, with a maximum daily influent flow of 1.8 mgd.

Treatment is accomplished using membrane bioreactor (MBR) technology that is comprised of a two-stage biological nutrient removal step, followed by filtration and then chlorine disinfection. Solids removed during wastewater treatment at the MWRWP are sent back into the sewer force main where the solids are then conveyed to the BITP. The process flow diagram is shown in **Figure 3-3**.

The majority of Class A reclaimed water produced at the MWRWP is used for groundwater recharge purposes at two locations: 1) LOTT's Hawks Prairie Ponds and Recharge Basins; and, 2) the Woodland Creek Groundwater Recharge Facility owned by the Cities of Lacey and Olympia. At LOTT's Hawks Prairie site, reclaimed water is conveyed through a series of five constructed wetland ponds before flowing to groundwater recharge basins.

In 2015, the MWRWP produced an average reclaimed water flow of 1.13 mgd.

The MWRWP and Hawks Prairie Reclaimed Water Recharge Facility are permitted by Ecology and DOH under Reclaimed Water Permit ST 6206.

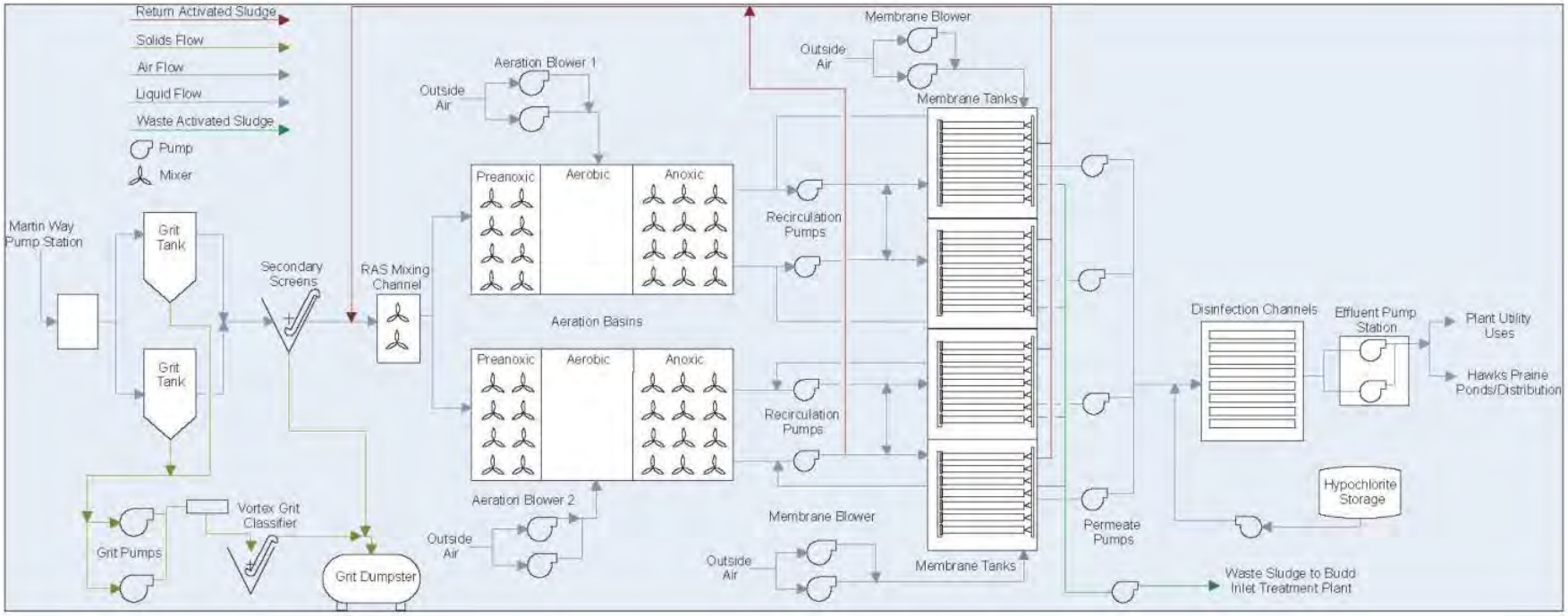


Figure 3-3. Martin Way Reclaimed Water Plant Process Schematic.

(1) Source: Lubliner 2010.

4.0 Wastewater/Reclaimed Water Quality Monitoring Methods

The wastewater and reclaimed water characterization effort was conducted according to a work plan (HDR 2015) that was reviewed and discussed with multiple parties engaged in the Study, including LOTT's Science Task Force (comprised of staff from LOTT and LOTT's partner jurisdictions, as well as representatives from other local and State entities including Ecology, DOH, and the Squaxin Island Tribe) and an independent peer review panel facilitated by the National Water Research Institute. Key elements of the monitoring approach are described in detail below.

4.1 Parameters Analyzed

Table 4-1 summarizes the parameters analyzed to characterize wastewater and reclaimed water quality, along with their associated laboratory analytical methods. The full list of residual chemicals is provided in **Appendix A**, along with descriptions of the types of chemicals they are. The complete list of analytes is provided in **Appendix B**, which is a tabular summary of all results. Field parameters were also collected including pH, electrical conductance, dissolved oxygen, oxidation reduction potential (ORP) and temperature. Free and total chlorine was also measured in the field on reclaimed water only (not wastewater).

Table 4-1. Analytical Parameters for Wastewater and Reclaimed Water Characterization

Parameter[1]	Method	Parameter[1]	Method
Residual Chemicals[2]	LC/MS/MS	Dissolved total phosphorus. Dissolved orthophosphate	EPA 365.1/SM4500-P-E
Trihalomethanes	524.2	Total phosphorous, orthophosphate	EPA 365.1&365.2, SM4500P-E
HAA5[3]	SM6251B	Total organic carbon	SM 5310C
Cryptosporidium[3]	EPA 1623	Biodegradable organic carbon	Allgeier 1996
SVOC[3]	EPA 525.2	Total coliform	SM 9223
VOC[3]	EPA 524.2	Fecal coliform	SM 9223
PFOS/PFOA+ other PFCs[3]	LC-MS-MS	Coliphage	Adams, 1959
PBDEs plus permethrins[3]	GC-QQQ	Chemical oxygen demand	EPA 410.4
EDB/DBCP[3]	EPA 551.1	Biochemical oxygen demand	SM 5210B
Pesticides[3]	EPA 505	Metals (Ag, Al, As, B, Be, Ca, Cd, Cr, Cu, Fe, Hg, Pb, Mg, Mn, Na, Pb, Ni, Se, Sb, Si, Tl, Zn)[4]	EPA 200 series
Herbicides[3]	EPA 515.4	Total Sulfide	SM4500SD/376.2
Low Detection Limit Hormones[3]	EPA 539 Modified	Chloride, Sulfate, Bromide	EPA 300.0
NDMA[3]	EPA 521	Chloramines	SM 4500CL-G
1,4-Dioxane[3]	EPA 522	Fluoride	SM 4500F-C
Nitrate, nitrite	EPA 300. 351.1, 351.2	Free and total chlorine	SM 4500CL-G
Ammonia, TKN	EPA 350.1, 351.2	Total dissolved solids	SM 2540C

Notes:

1. This is the complete list of parameters included in the sampling protocol. Not all parameters were sampled for at each sample location, or during each quarterly sampling event, due to budgetary constraints.
2. Residual chemical list provided in Appendix A. Two residual chemicals (metformin and thiabendazole) were not analyzed for within the BITP Secondary Effluent (see note 3).
3. These parameters were not run on the BITP Secondary Effluent (the water that is discharged directly into Budd Inlet), due to budgetary constraints.
4. Total metals (not field filtered) and dissolved metals (field filtered) were analyzed for raw wastewater influent samples. Reclaimed water and secondary effluent water samples were analyzed only for dissolved metals (field filtered). Total metals were included only for raw wastewater due to the presence of solids and particulate matter in that matrix.

4.2 Sampling Dates

Four quarterly sampling events were conducted, in order to observe potential seasonal differences in water quality. The associated sampling dates are summarized in **Table 4-2**.

Table 4-2. Sampling Dates

Sampling Event	BITP/BIRWP	BITP Secondary	MWRWP
1	November 13, 2014	November 13, 2014	November 12, 2014
2	February 18, 2015	February 18, 2015	February 17, 2015
3	May 20, 2015	N/A	May 20, 2015
4	August 19, 2015	August 19, 2015	October 7, 2015

The fourth sampling event for the MWRWP was originally scheduled to occur in August of 2015, but was delayed as the amount of water sent to the Hawks Prairie Ponds and Recharge Basins from the MWRWP was reduced in the summer of 2015, with the majority of flow going instead to the Woodland Creek Groundwater Recharge Facility. This, combined with the hot, dry weather conditions of summer 2015, resulted in decreased water levels in the Hawks Prairie wetland ponds and little water infiltrated in the Hawks Prairie Recharge Basins. In order to sample pre- and post-wetland water quality, as well as Class A reclaimed water quality, the final sampling event was postponed until such time that the wetland levels returned to higher levels and reclaimed water was flowing through them and into the recharge basins.

4.3 Sampling Locations

Samples were collected from multiple locations at the BITP/BIRWP and MWRWP facilities, as described below.

BITP/BIRWP Sample Collection Locations

1. Wastewater Influent: Raw wastewater coming into the BITP, at the Autosampler port normally used by LOTT for influent water quality monitoring.
2. Secondary Effluent: Treated secondary effluent discharged to Budd Inlet, at the Autosampler port normally used by LOTT for secondary effluent water quality monitoring.
3. Reclaimed Water: Class A reclaimed water produced at the BIRWP, prior to entering the downtown Olympia reclaimed water distribution system, at the Autosampler port normally used by LOTT for Class A reclaimed water quality monitoring.

MWRWP Sample Collection Locations

1. Wastewater Influent: Screened wastewater coming into the MWRWP from the Martin Way Pump Station, prior to the beginning of the treatment processes, at the Autosampler port normally used by LOTT for influent water quality monitoring.
2. Reclaimed Water: Class A reclaimed water produced at the MWRWP treatment plant, prior to leaving the plant site, at the Autosampler port normally used by LOTT for Class A reclaimed water quality monitoring.
3. Reclaimed Water Pre-Wetlands: Reclaimed water at the inflow point to the constructed wetlands at LOTT's Hawks Prairie site (i.e, at the end of the conveyance line that extends from the MWRWP to the Hawks Prairie site).

4. Reclaimed Water Post-Wetlands (Pre-Infiltration Basins): Reclaimed water that has been conveyed through the constructed wetlands, sampled at the inflow point to the infiltration basins at LOTT's Hawks Prairie site (i.e., water flowing out of the HDPE distribution header pipe lining an active infiltration basin).

The focus of this effort is on characterizing the raw wastewater influent and Class A reclaimed water produced at each facility. As such, samples were taken at these locations during each quarterly sampling event. Samples were taken at the other locations only during two sampling events, due to budget constraints.

For each sampling event, the "percent removal" of certain parameters is calculated, which reflects the difference in concentrations between raw wastewater and reclaimed water. This should be understood to be an approximation of the removal efficiency, as the grab samples at various stages of treatment were all obtained typically within the space of one hour and were not timed to reflect sampling of the same aliquot of water as it traveled through the treatment process (e.g., the reclaimed water sampled on a given day reflects the effects of treatment on raw wastewater that would have entered the treatment facility hours before, and is not directly correlated to the raw wastewater sample taken for the purpose of this study). However, this sampling protocol is typical of these types of studies and is considered adequate to provide a general characterization of water quality at various stages of treatment on a given day.

4.4 Sample Collection Procedures

Grab water samples were collected from the locations identified above. Sampling was conducted by personnel using laboratory grade gloves, with samples being placed directly into new laboratory bottles. Sample bottles were labeled with a unique sample identification number, sample date and time, and requested analysis.

The Autosamplers associated with the Raw Wastewater, Reclaimed Water, and Secondary Effluent samples were programed to purge the lines of stagnant water prior to discharging the appropriate sample volume. The sample port associated with the Pre-Wetlands sample was allowed to run for several minutes to clear the lines of stagnant water prior to sample collection. The Post-Wetlands samples were collected from water being directly discharged from the distribution header pipe associated with the infiltration basin active at the time of sampling.

Samples were collected in sequential order "up" the flow stream. For example, at the MWRWP, sampling began with the Post-Wetland sample location and concluded with the Raw Wastewater Influent sample location, in order to avoid contamination of cleaner water. All samples from a given site were collected on the same day.

Sample bottles were filled with water directly from the Autosampler port, sample port, or distribution header pipe, preserved with laboratory-supplied chemical preservative, if required, and placed in an ice-filled cooler. Dissolved metals and dissolved total phosphorus samples were collected by filling an unpreserved laboratory-supplied container with water and filtering the contents through a disposable 0.45 micron filter into the appropriate sample containers using a peristaltic pump. New filters and tubing were used for each sample.

Field parameters, including pH, temperature, dissolved oxygen, conductivity, and oxygen reduction potential, were collected immediately after sampling by filling a cup directly from the sample location and submersing the probe of a YSI Pro multi-meter in the cup. After allowing the readings to stabilize, field parameters were recorded on individual field sheets.

One field duplicate was collected during the first quarterly monitoring event by filling two identical sets of sample containers with water from the same sample location for each of the planned analyses. Field duplicates were given unique sample numbers and sample times. Additional volume was collected with one sample per quarter for laboratory analysis of a Matrix Spike/Matrix Spike Duplicate (MS/MSD).

4.5 Chain of Custody Procedures

Samples were tracked using proper chain-of-custody procedures. One chain-of-custody was completed for each sample. Completed chains-of-custody accompanied the samples from collection through shipping, sample receipt at the laboratory, and analysis.

Samples were shipped to Eurofins Eaton Analytical (EEA) and Centric Analytical Labs in individual coolers for analysis. Prior to shipment, sample bottles were wrapped in bubble wrap and placed inside coolers for shipment. All sample bottles for a discrete sample were shipped within the same cooler. Two large garbage bags were placed within each cooler prior to packing samples for shipment. The sample bottles were placed within an inner garbage bag, the bag was sealed, and loose ice was placed in the outer bag to cool the samples to 4°Celcius (C). The outer bag was sealed to prevent leaking during shipment. The chain of custody was placed in a zip-top plastic bag and taped to the interior lid of the cooler. The cooler was taped shut and transported to FedEx for overnight shipment to EEA. Coliform samples were sent to Centric Analytical Labs by courier.

4.6 Laboratory Data Validation Process

Upon completion of the laboratory analysis, the laboratory data packages were downloaded and reviewed for completeness at the end of each quarterly event. At the conclusion of all sampling events, a laboratory data validation review was completed to confirm accuracy and completeness for these items: sample identification, chain-of-custody and sample receiving, preservation methods, hold and extraction times, laboratory detection limits, surrogate recovery, blanks, spikes, duplicates, control samples, matrix spikes, and matrix spike duplicates.

A tabular summary of all results, including qualifiers, is presented in **Appendix B**. The data validation report documenting the data review process is included in **Appendix C**. Complete laboratory reports are included in **Appendix D** (provided as separate files).

A summary of the laboratory quality control/quality assurance and data validation/verification results are as follows:

1) **Hold Times.** Many of the samples analyzed for residual chemicals were determined to have exceeded hold times. A hold time study was conducted in 2016 to determine the effects of long hold times on the pharmaceuticals and personal care products (PPCPs)

and perflourinated compounds (PFCs). A summary of that hold time study and its results is provided in **Appendix C**. In brief, the study found that 90 of the 98 compounds evaluated appear to remain stable throughout an 84 day period (i.e., beyond the longest hold time experienced in this study). Eight compounds appear to show evidence of degradation or analytical variability, as follows:

- Two compounds (metazachlor and metolachlor) began to degrade after approximately two weeks. Because all metazachlor and metolachlor samples were analyzed past a two week hold time, all of the results for these two parameters are assigned an "R" data quality flag, indicating the data are rejected. For the wastewater and reclaimed water quality evaluation described in this technical memorandum, this impacts only the metazachlor data, as metolachlor was not analyzed for (this compound was added to the laboratory's standard analytical list after the start of this effort).
- Four compounds (amoxicillin, azithromycin, cimetidine, and nonyl-phenol) show analytical variability on individual days and between days. Therefore, the results for these compounds should be considered semi quantitative (i.e., concentration results are estimates). "J" data quality flags (indicating the value is an estimate) are assigned for all of the results for these compounds (non-detects estimates are assigned a "UJ" flag). All of these chemicals were detected at least once in raw wastewater, while only nonyl-phenol was also detected in reclaimed water.
- Two compounds (nifedipine and theophyline) show concentrations consistently under or over the laboratory control sample (LCS) limits, but no evidence of inconsistent variability or degradation. This appears to be the result of a sample matrix effect or calibration artifact for this sample. "J" data quality flags are assigned for all of the results for these compounds (non-detects are assigned a "UJ" flag). Nifedipine was detected at least once in raw wastewater and in reclaimed water. Theophyline was not analyzed for (this compound was added to the laboratory's standard analytical list after the start of this effort).

2) **Surrogate Spike Recoveries.** Surrogates are organic compounds that are similar in chemical composition, extraction, and chromatography to certain analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analysis. Surrogate spikes were added to each sample for analysis of many of the organic parameters included in this study (e.g., those that were analyzed for using EPA Methods 515.4, 505, 525.2, 524.2, and 551.1). Many surrogate recoveries for these methods were low compared to the methods' control limits for samples of raw wastewater. This reflects a matrix effect associated with the complex organic matrix of raw wastewater. In the majority of these cases, the analytes were non-detect and assigned a "UJ" flag. Surrogate spikes do not apply to the residual chemical parameters, as this quality control procedure is not employed for that method.

3) **Matrix Spike Recoveries.** Another means by which to examine matrix effects is to spike samples with known concentrations of analytes and compare percent recoveries to statistical control limits. This method identified some residual chemicals for which results for certain samples fell outside the quality control limits. The results for these chemicals were flagged according to the results. As described in more detail in **Appendix C**, the flagged results apply to some reclaimed water, pre-wetland, and post-wetland samples.

4) **Laboratory Control Sample Spike Recoveries.** Laboratory Control Samples (LCS) are samples of known concentration that are carried through the extraction and analysis process. The percent recovery is the percentage of the theoretical concentration, and has statistical control limits indicating that the analytical process is "in control." This method identified some parameters (mostly PBDEs) for which results for certain samples fell outside the quality control limits. The results for these chemicals were flagged according to the results. As described in more detail in **Appendix C**, the flagged results apply to some raw wastewater, reclaimed water and post-wetland samples.

5) **Duplicate Field Sample.** One duplicate field sample was obtained during one sampling event, for the purpose of calculating relative percent differences (RPDs) between the parent and duplicate samples. RPDs ranged from 0 to 83 percent. Generally a RPD of less than 20 percent is desirable. RPDs that exceeded this threshold may represent variation in chemical concentrations over the time of obtaining the two samples and/or variability within the limits of the laboratory analytical methods at the low observed concentrations.

5.0 Wastewater/Reclaimed Water Quality Monitoring Results

The analytical results for the Budd Inlet Treatment Plant (BITP) and Budd Inlet Reclaimed Water Treatment Plant (BIRWP) are presented first, followed by the analytical results from the Martin Way Reclaimed Water Plant (MWRWP).

5.1 Budd Inlet Reclaimed Water Plant

The results of sampling conducted at the BITP/BIRWP are summarized below. A complete tabular summary of all data is provided in **Appendix B**.

The general conditions at the times of sampling are first described, followed by a summary of conventional wastewater/reclaimed water indicator parameters. Residual chemical results are then presented, followed by a summary of other analytes that were included in the monitoring effort.

5.1.1 Conditions at Times of Sampling

The flow and temperature conditions on the days of sampling are presented in **Table 5-1**. The conditions during Events 1 and 2 were quite different than those of Events 3 and 4. Significant rainfall occurred within the two weeks leading up to each of the first two events of sampling, whereas the late spring and summer sampling occurred during much drier times. Raw wastewater temperatures ranged from a low of 13.1 ℃ to a high of 22.8 ℃.

Other wastewater treatment operating characteristics are also depicted in **Table 5-1**, including the solids retention time, which reflects the average retention time of activated sludge solids in the biological treatment process. A higher SRT reflects a greater amount of solids being recycled or sent back to the start of the biological process, and indicates longer contact time between microorganisms and chemicals that they degrade. The SRT at the BITP was fairly consistent during each sampling event, ranging from 18.6 to 21.6 days.

Table 5-1. Budd Inlet Treatment Plant Summary of Flow and Operating Conditions

Parameter	Units	Sampling Event 1 (11/13/14)	Sampling Event 2 (02/18/15)	Sampling Event 3 (05/20/15)	Sampling Event 4 (08/19/15)
Flow (Influent)	Mgd	9.7	12.09	9.71	8.85
Precipitation (14-day period before sampling)	Inches	3.2	4.1	0.3	0.9
Temperature (Raw Wastewater)	℃	13.9	13.1	18.2	22.8
Mixed Liquor Suspended Solids (MLSS)	mg/L	1,998	1,745	1,910	1,766
Solids Retention Time (SRT)	Days	18.6	21.6	19.3	19.6
Hydraulic Residence Time (HRT)	Hours	14.3	11.5	12.6	13.8

5.1.2 Conventional Parameters

The quality of reclaimed water and efficacy of treatment processes can be evaluated by examining the concentration of nutrients and other water quality indicator parameters, as well as comparing the results with the Ecology permit limitations. A summary of this type of information is provided in **Table 5-2**.

As can be seen by these data, the BITP/BIRWP produces high quality reclaimed water that consistently meets permit requirements. Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS) are both less than 5 milligrams per liter (mg/L) on average.

The data suggest that the biological nutrient removal processes were fully underway during sampling Events 2-4, when total nitrogen was less than 4.0 mg/L and ammonia levels were quite low at less than 0.1 mg/L. By contrast, higher nitrogen levels were present during Event 1, reflecting that the BITP was not operating in full BNR mode during that time.

Other indicators of reclaimed water quality are also presented in **Table 5-2**. For example, total organic carbon (TOC) ranged from 5.4 to 12 mg/L, and total phosphorus ranged from 3.1 to 4.6 mg/L.

Table 5-2. Budd Inlet Treatment Plant and Reclaimed Water Plant Summary of Conventional Parameters

Parameter	Unit	MRL	Ecology Permit Limit (Average Monthly)	Sampling Event 1 (11/14)		Sampling Event 2 (02/15)		Sampling Event 3 (05/15)		Sampling Event 4 (10/15)		2015 Annual Average of Reclaimed Water Concentrations [1]
				Influent Wastewater	Reclaimed Water	Influent Wastewater	Reclaimed Water	Influent Wastewater	Reclaimed Water	Influent Wastewater	Reclaimed Water	
Parameters with Permit Limits												
Biochemical Oxygen Demand ($BOD_{5)}$	mg/L	3	30 (Nov-Mar) 8 (Apr, May, Oct) 7 (Jun-Sep)	220 J	5	420	ND	260	ND	270	ND	3.01
Total Suspended Solids (TSS)	mg/L	10	30	260	ND	180	ND	460	ND	250	ND	4.06
Turbidity [2]	NTU	0	2	--	0.35	--	0.43	--	0.42	--	0.15	0.23
Nitrogen												
Total Nitrogen	mg/L	0.2	N/A	51	8.7	50	3.8	65	2.9	82	3	4.71
Nitrate (as N)	mg/L	0.1	10	ND (<0.2)	4.6	ND (<0.2)	2.7	ND (<0.2)	1.9	ND (<0.2)	1.8	2.37
Ammonia (as N)	mg/L	0.05	N/A	34	2.9 J+	31	0.052	41	ND	41	0.06	0.226
Dissolved Oxygen	mg/L	N/A	Measurable	1.4	7.2	3.83	8.37	2.5	7	2.08	6.75	3.92
Total Coliform	MPN/ 100 mL	1	2.2	>241,960 J	9.5 J	>241,960	<1	>241,960	<1	>241,960	3	0.3
pH	units	N/A	6.0-9.0	7.42	7.16	7.26	7.1	7.33	7.16	7.23	6.82	7.01
Other Parameters												
Total Organic Carbon	mg/L	0.3	N/A	81	5.4	110	12	140	6.8	160	9	--
Dissolved Organic Carbon	mg/L	0.3	N/A	51	4.8 J+	49	7.9	63	7.1 J+	56	6.5 J+	--
Biodegradable Dissolved Organic Carbon	mg/L	0.3	N/A	25	0.7	21	ND	34	0.69	36	ND (<0.6)	--
Total Phosphorus	mg/L	0.02	N/A	8.2	4.6	6.8	3.1	9.4	3.8	7.4	4	--
Orthophosphate	mg/L	0.01	N/A	4.4	4.8	3.5	2.9	4.6	3.7	4	4.9	--

Notes:
ND = Not Detected (i.e., not detected above the method MRL); ND (<#) = Not Detected and Minimum Reporting Limit (MRL) is higher than the method MRL due to dilutions; -- = Analyte not Analyzed; N/A = Not Applicable; MPN = Most Probable Number
Data Qualifiers: J = estimated value; J+ = estimated value, biased high
(1) Annual average from LOTT sampling (spreadsheet for 2015 data); not from Study sampling.
(2) All values from HDR field sampling, except for turbidity which was taken from LOTT reported data.

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5.1.3 Residual Chemicals

Table 5-3 summarizes the numbers of detections of residual chemicals at the various sampling locations studied at the BITP/BIRWP. Out of a total of 127 such chemicals analyzed for, up to 67 were detected in raw influent wastewater, while up to 40 were detected in reclaimed water. The greatest numbers of detections in both wastewater and reclaimed water occurred during Event 1. With respect to reclaimed water, the fewer detections in Events 2 to 4 could correlate with the full operation of the BITP BNR process occurring during those time, as described in Section 5.1.2.

Table 5-3. Budd Inlet Reclaimed Water Plant Summary of Residual Chemical Detections

	Sampling Event 1 (11/14)	Sampling Event 2 (02/15)	Sampling Event 3 (05/15)	Sampling Event 4 (08/15)	Average
Total Number of Analytes (1)	127	127	127	127	127
Detections in Wastewater	67	55	50	39	53
Detections in Secondary Effluent	--	33	--	28	31
Detections in Reclaimed Water	40	25	23	27	29

Notes:
-- = Not analyzed.
(1) Includes all Residual Chemicals, PFCs, PBDEs, EDB, and DBCP.

Table 5-4 contains the 49 residual chemicals that were detected in reclaimed water in at least one event of sampling. Concentrations observed in influent wastewater and reclaimed water are reported. Concentrations observed in secondary effluent are contained within the complete tabular summary in **Appendix B**, along with the qualifiers for all data.

A comparison of the concentrations in reclaimed water versus wastewater is also provided for each chemical in each event. This comparison provides only an approximate evaluation of treatment effectiveness however, because the sampling did not consider retention time. That is, the timing for the collection of pre- and post-treatment water samples did not accommodate the flow of a discrete volume of water through the treatment plant. The scope of this project did not support such precise timing, which would have required more samples and a higher frequency of sampling. However, this calculation does provide a general indication as to the relative difference in concentrations between the influent and effluent water at the BITP/BIRWP.

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Table 5-4. Budd Inlet Reclaimed Water Plant Residual Chemicals Detected in Reclaimed Water (in at least one sampling event)

			Event 1 (11/13/14)			Event 2 (02/18/2015)			Event 3 (5/30/2015)			Event 4 (08/19/15)		
ANALYTE	**UNIT**	**MRL[(2)]**	**Wastewater**	**Reclaimed Water**	**% Removal**	**Wastewater**	**Reclaimed Water**	**% Removal**	**Wastewater**	**Reclaimed Water**	**% Removal**	**Wastewater**	**Reclaimed Water**	**% Removal**
RESIDUAL CHEMICALS														
N-Nitroso dimethylamine (NDMA)	ng/L	2	5.1	4.5	12%	*ND UJ*	*ND*	*ND*	*ND UJ*	3	*NC*	*ND UJ*	2.4	*NC*
1,4-Dioxane	ug/L	0.07	0.36	0.43	-19%	0.36	0.39	-8%	0.26	0.43	-65%	0.29	0.45	-55%
4-nonylphenol - semi quantitative (1)	ng/L	100	3200 J	1100 J	66%	790 J	*ND UJ*	> 87%	1200 J	110 J	91%	440 J	240 J	45%
4-para-Nonylphenol (1)	ng/L	100	1200	240	80%	--	--	--	--	--	--	--	--	--
Acesulfame-K	ng/L	20	20000	1300	94%	60000	13000	78%	43000	12000 J+	72%	31000	23	99.9%
Albuterol	ng/L	5	10	5.8	42%	26	*ND*	> 81%	*ND*	*ND*	*ND*	46 J	*ND*	> 89%
Atenolol	ng/L	5	650	180	72%	2800	230	92%	2400	190	92%	1900	220	88%
Butalbital	ng/L	5	5.5	*ND*	> 9%	*ND*	*ND*	*ND*	18	*ND*	> 72%	6.1	5.9	3%
Caffeine	ng/L	5	53000	*ND*	> 99%	280000	*ND*	> 99%	82000	*ND*	> 99%	97000	76	99%
Carbamazepine	ng/L	5	230	220	4%	370	280	24%	820	260	68%	490	330	33%
Carisoprodol	ng/L	5	5	8.3	-66%	13	21	-62%	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Chloramphenicol	ng/L	10	*ND*	*ND*	*ND*	*ND*	24	*NC*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Cotinine	ng/L	10	1400	17	99%	3800	21	99%	4400	38 J	99%	2400	130	95%
DACT	ng/L	5	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	5 J-	*NC*	*ND*	*ND*	*ND*
DEET	ng/L	10	120	*ND*	> 92%	130	52	60%	300	27	91%	1100	18	98%
Dehydronifedipine	ng/L	5	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	7.5	*NC*
Diuron	ng/L	5	11	16	-45%	*ND*	*ND*	*ND*	*ND*	*ND UJ*	*ND*	*ND*	*ND*	*ND*
Dilantin	ng/L	20	150	80	47%	94	85	10%	220	*ND*	> 91%	*ND*	*ND*	*ND*
Diltiazem	ng/L	5	62	23	63%	68	*ND*	> 93%	92	*ND*	> 95%	29	*ND*	> 83%
Erythromycin	ng/L	10	230	25	89%	44	*ND*	> 77%	84	*ND*	> 88%	*ND*	*ND*	*ND*
Estrone (low detection)	ng/L	0.5	2.7	0.91	66%	33	*ND*	> 98%	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Ethinyl Estradiol - 17 alpha (low detection)	ng/L	0.5	*ND*	*ND*	*ND*	0.53	*ND*	> 6%	*ND*	*ND*	*ND*	39	38	3%
Fluoxetine	ng/L	10	400	62	85%	170	54	68%	58	31 J-	47%	38	45	-18%
Gemfibrozil	ng/L	5	800	710	11%	2100	40	98%	3900	14	99%	1900	12	99%
Iohexal	ng/L	10	8400	5000	40%	16000	12000	25%	33000	14000	58%	10000	10000	0%
Iopromide	ng/L	5	14	15	-7%	14	43	-207%	380	62	84%	24	80	-233%
Ketorolac	ng/L	5	120	18	85%	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	160	*ND*	> 97%
Lidocaine	ng/L	5	79	120	-52%	270	*ND*	> 98%	690	*ND UJ*	> 99%	*ND*	*ND*	*ND*
Lopressor	ng/L	20	290	150	48%	*ND*	220	*NC*	840	170 J-	80%	260	210	19%
Meprobamate	ng/L	5	73	26	64%	38	52	-37%	*ND*	22 J-	*NC*	*ND*	41	*NC*
Metformin	ng/L	10	19000	150	99%	3500	31	99%	84000	790	99%	480000	1500	99%
Naproxen	ng/L	10	48	13	73%	510	*ND*	> 98%	100	*ND*	> 90%	9500	*ND*	> 99%
Pentoxifylline	ng/L	5	*ND*	*ND*	*ND*	24	9.2	62%	*ND*	9.9 J-	*NC*	*ND*	*ND*	*ND*
Primidone	ng/L	5	300	180	40%	200	130	35%	220	150	32%	360	200	44%
Quinoline	ng/L	5	18	*ND*	> 72%	140	*ND*	> 96%	330	20	94%	130	13	90%
Simazine	ng/L	5	8.8	5.2	41%	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Sucralose	ng/L	100	63000	18000	71%	64000	26000	59%	77000	43000 J+	44%	62000	50000	19%
Sulfamethoxazole	ng/L	5	3000	240	92%	1000	*ND*	> 99%	240	*ND*	> 98%	2900	90	97%

			Event 1 (11/13/14)			Event 2 (02/18/2015)			Event 3 (5/30/2015)			Event 4 (08/19/15)		
ANALYTE	**UNIT**	**MRL[(2)]**	**Wastewater**	**Reclaimed Water**	**% Removal**	**Wastewater**	**Reclaimed Water**	**% Removal**	**Wastewater**	**Reclaimed Water**	**% Removal**	**Wastewater**	**Reclaimed Water**	**% Removal**
TCEP	ng/L	10	33	53	-61%	33	120	-264%	90	110	-22%	200	200	0%
TCPP	ng/L	100	460	580	-26%	710	740	-4%	730	500	32%	630	610	3%
TDCPP	ng/L	100	160	220	-38%	130	220	-69%	*ND*	310	*NC*	180	210	-17%
Theobromine	ng/L	10	12000	13	99%	32000	*ND*	> 99%	19000	*ND*	> 99%	20000	57	99%
Thiabendazole	ng/L	5	72	15	79%	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Testosterone	ng/L	5	17	*ND*	> 71%	*ND*	6.6	*NC*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Triclosan	ng/L	10	420	19	95%	920	*ND*	> 99%	540	*ND*	> 98%	70	*ND*	> 86%
Trimethoprim	ng/L	5	260	97	63%	410	*ND*	> 99%	470	*ND*	> 99%	*ND*	*ND*	*ND*
PFCs														
Perfluoro octanoic acid - PFOA	ng/L	5	*ND*	7.4 J	*NC*	*ND*	5.6	*NC*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Perfluoro-n-hexanoic acid	ng/L	5	*ND*	17	*NC*	*ND*	8.8	*NC*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Perfluoropentanoic acid	ng/L	5	26	10	62%	--	--	--	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
PBDEs/EDB/DBCP														
Fipronil	ng/L	2	4.1 J-	46	-1022%	--	--	--	*ND UJ*	*ND UJ*	*ND*	5.1 J-	*ND*	> 61%

Notes:

MRL = Minimum Reporting Level; ND = Not Detected above MRL; ND (<#) = Not Detected and MRL is higher than the method MRL due to dilutions;
-- = Analyte not Analyzed; NC = Not Calculated. Analyte was not detected in wastewater, but was detected in reclaimed water.

mg/L = milligrams per liter (ppm); µg/L = micrograms per liter (ppb); ng/L = nanograms per liter (ppt)

Data Qualifiers: J = estimated value; J+ = estimated value, biased high; J- = Estimated Value, biased low; UJ = non-detect (estimated)

PFC = Perfluorinated Compound; PBDE = Polybrominated Diphenyl Ether; VOC = Volatile Organic Compound

% Removal = [1 - (Reclaimed Water Concentration/ Wastewater Influent Concentration)] x 100. Percent removals are considered estimates.
Positive values indicate Reclaimed Water concentration less than Wastewater concentration.
Negative values indicate Reclaimed Water concentration greater than Wastewater concentration.
Values preceded by ">" indicate the analyte was not detected in Class A Reclaimed Water. Therefore, percent removal is calculated based on MRL.

(1) “4-nonylphenol - semi quantitative” and “4-para-Nonylphenol” are the same chemical, but are listed separately as they were run by different methods.

(2) Listed MRLs are for undiluted samples only.

In some instances, the reclaimed water concentration is depicted as being higher than that in wastewater (indicated in **Table 5-4** by negative percent removal values). In a majority of such cases, this is due to the increased potential for signal suppression (i.e., the presence of certain organic compounds that "mask" or "hide" the presence of other organic compounds that occur at much lower concentrations) in the LC-MS-MS analysis of the complex wastewater matrix, as compared to the reclaimed water matrix. As described in the data validation report (**Appendix C**), surrogate spikes were used for some chemicals analyzed by EPA methods, so as to determine extraction recoveries. In the case of some chemicals (e.g., 1,4-dioxane, fipronil), surrogate recoveries were low in the wastewater samples. In these situations, the results were qualified as estimates. However, this quality control method is not employed with the laboratory's method used for the majority of the residual chemicals. Yet, because of known signal suppression potential in wastewater matrices, the calculated percent removals depicted in **Table 5-4** should be considered estimates.

For those chemicals that were detected in Event 1 as well as in at least one additional event, concentrations in reclaimed water were often higher in Event 1, and percent removal lower, as compared to subsequent events. Gemfibrozil exhibited this trend, with an Event 1 reclaimed water concentration of 710 nanograms per liter (ng/L), and a range of concentrations in subsequent events of 12-40 ng/L. Exceptions to this trend include metformin, the concentrations of which varied significantly between 31 and 1,500 ng/L, with the highest concentration occurring in Event 4.

Seventeen chemicals (of the 49 listed in **Table 5-4**) were detected in reclaimed water in all four events. **Table 5-5** lists this subset of 17 chemicals, along with the range of concentrations observed and average percent removal between reclaimed water and wastewater. The chemicals routinely present at the highest concentrations are the artificial sweeteners sucralose and acesulfame-K, and the x-ray contrast agent iohexal. Atenolol, cotinine, and metformin were all present in reclaimed water but at concentrations significantly less than (i.e., less than 80% of) those in raw wastewater. The following chemicals were observed to be present at higher concentrations in reclaimed water than in wastewater (as indicated by negative percent removals in **Table 5-5**): 1,4-dioxane, iopromide, TCEP, and TDCPP. As noted previously, this could be a function of the concentrations in wastewater being underestimated due to signal suppression in the LC-MS-MS analysis. It could also reflect little to no removal through the treatment process (i.e., concentrations being similar in raw wastewater and reclaimed water). Of those chemicals for which positive percent removals were determined, the following had the smallest differences in concentrations between raw wastewater and reclaimed water, thereby indicating resistance to removal through the reclaimed water treatment processes: iohexal (31%), carbamazepine (32%), and primidone (38%).

Table 5-5. Budd Inlet Reclaimed Water Plant Residual Chemicals Detected in Reclaimed Water (in all sampling events)

Detected Chemical	Range of Concentration (ng/L)	Average Concentration (ng/L)	Average % Removal (Reclaimed Water Compared to Wastewater)
1,4-Dioxane	390-450	425	-37
Acesulfame-K	23-13000	6581	86
Atenolol	180-230	205	86
Carbamazepine	220-330	275	32
Cotinine	17-130	52	98
Fluoxetine	31-62	48	46
Gemfibrozil	12-710	194	77
Iohexal	5000-14000	10250	31
Iopromide	15-80	50	-91
Lopressor	150-220	188	49
Meprobamate	22-52	35	14
Metformin	31-1500	618	99
Primidone	130-200	165	38
Sucralose	18000-50000	34250	48
TCEP	53-200	121	-87
TCPP	500-740	620	1
TDCPP	210-310	240	-41

Notes:
Negative values indicate that the value in reclaimed water was greater than that in wastewater (and in some sampling events, the analyte may not have been detected in wastewater).

5.1.4 Other Parameters

A wide range of additional parameters were analyzed during this effort. All data are presented in the tabular summary in **Appendix B**. Summaries are provided below.

Disinfection Byproducts

Disinfection byproducts (DBPs) were observed in reclaimed water, likely a result of added chlorine reacting with organic matter in the treated wastewater. Total trihalomethanes (TTHMs) ranged from 13 to 68 micrograms per liter (µg/L), comprised mainly of chloroform and bromodichloromethane. Total haloacetic acids (HAAs) ranged from 26 to 62 µg/L. DBP concentrations were highest in Events 3 and 4.

Pesticides/Herbicides

In addition to the few pesticides and herbicides that were analyzed for in the suite of residual chemicals, the complete list of such compounds included in EPA Methods 505 and 515.4 were also analyzed. Only one detection was observed in reclaimed water: dalapon, at 1.7 µg/L in Event 4.

Volatile and Semivolatile Organic Compounds

The full suite of analytes included in EPA Methods 524.2 (VOCs) and 525.2 (SVOCs) were analyzed. Only one detection was observed in reclaimed water: dichloromethane, at 0.56 µg/L in Event 4. The negligible detection of VOC/SVOC parameters is likely for a few reasons:

A) There are not many industrial dischargers into the wastewater collection system.
B) The industrial dischargers are regulated to prohibit industrial solvents or other similar chemicals.
C) The treatment system involves extensive aeration and VOCs/SVOCs would be removed during that process.

Metals

Four dissolved metals, as analyzed for in EPA Methods 200.8 and 245.1, were detected in reclaimed water in all four events. Average concentrations of arsenic, barium, copper, and zinc in reclaimed water were 1.5 µg/L, 4.5 µg/L, 7.6 µg/L, and 63.3 µg/L, respectively. Metals concentrations were relatively consistent amongst the four events, with the exceptions of copper and zinc levels in Event 4 being higher than those in prior events.

Metals analyzed for in EPA Method 200.7, such as calcium, iron, and magnesium, were consistently detected in reclaimed water at concentrations typical of Class A reclaimed water.

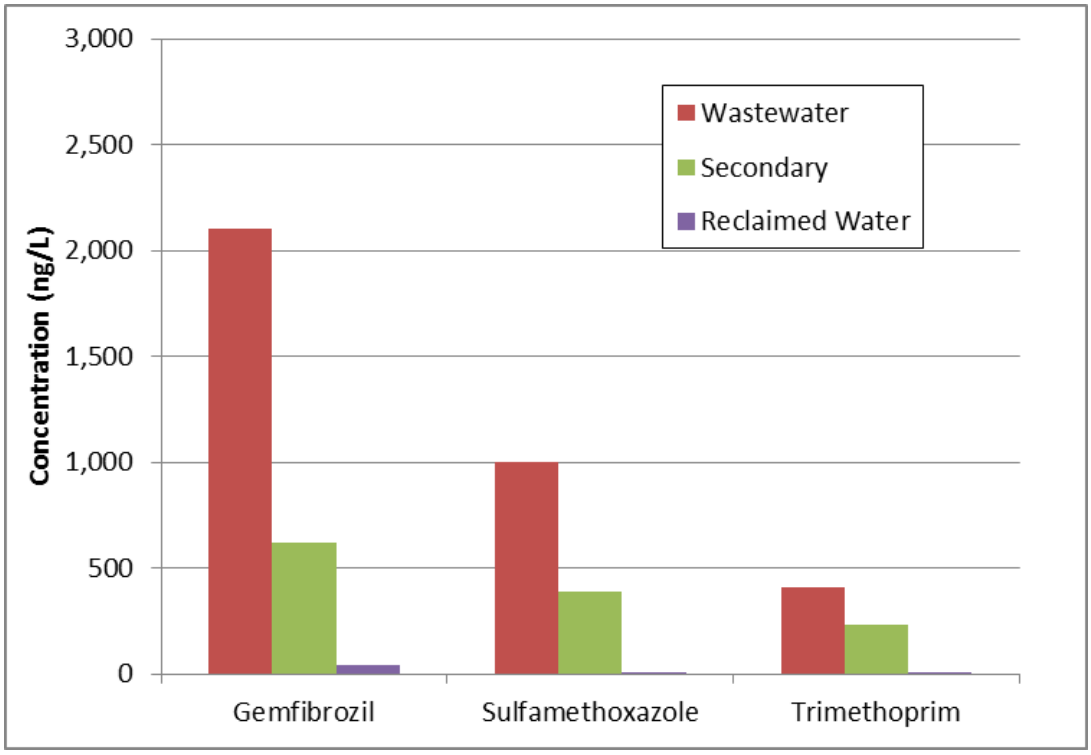
5.1.5 Comparison of Secondary Effluent and Reclaimed Water

As noted previously, the BIRWP receives only a portion of the total amount of water processed at the BITP, to produce reclaimed water. The remaining treated water produced at the BITP is discharged as secondary effluent into Budd Inlet. The detailed results from the sampling of secondary effluent during Events 2 and 4 are provided in **Appendix B**.

The quality of secondary effluent is quite consistent with that of reclaimed water, particularly with respect to residual chemicals. As summarized in **Table 5-3**, the number of detections in secondary effluent is very similar to that of reclaimed water. This is an indication that the majority of residual chemical removal is occurring in the BITP treatment processes, with little additional removal occurring in the filtration and chlorine disinfection steps added at the BIRWP.

For those chemicals that are present in both waters, concentrations are typically similar. Exceptions include gemfibrozil, sulfamethoxazole, and trimethoprim, concentrations of which are summarized in **Figure 5-1**. For these chemicals, concentrations in reclaimed water (typically non-detect) were notably less than those in secondary effluent (where detections were well above the MRL).

Event 2 (02/18/2015)



Event 4 (08/19/2015)

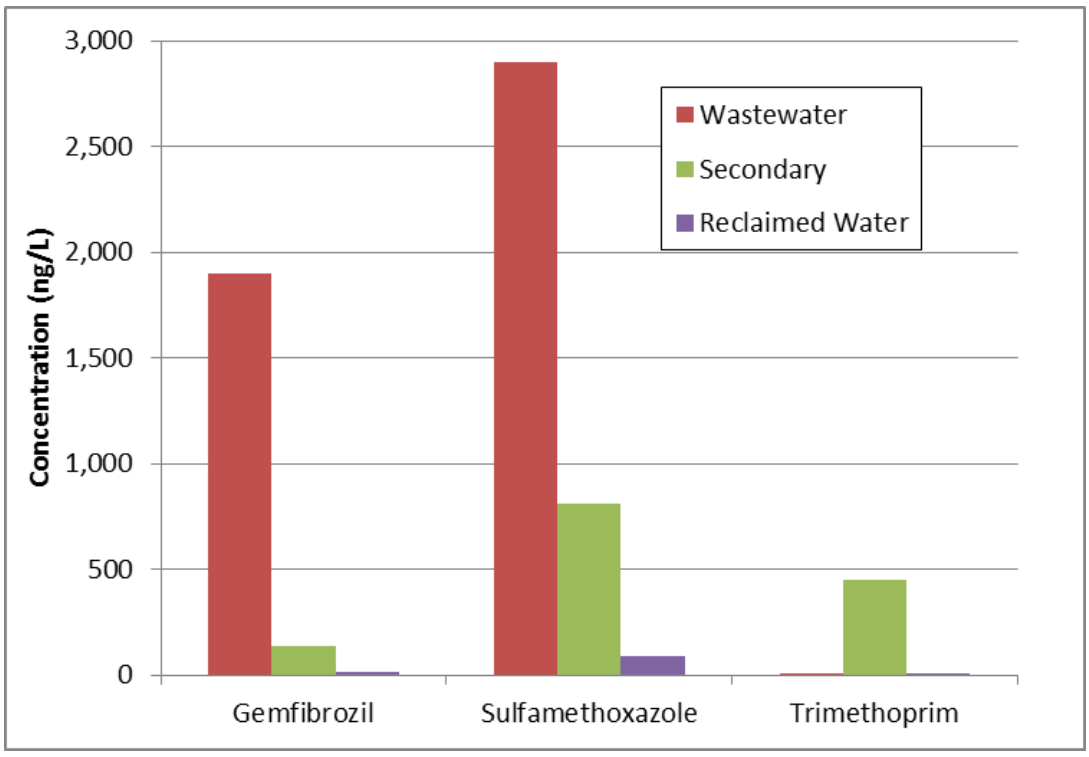


Figure 5-1. Residual Chemicals with Differing Concentrations in Secondary Effluent and Reclaimed Water (Events 2 and 4).

5.2 Martin Way Reclaimed Water Plant

The results of sampling conducted at the MWRWP are summarized below. A complete tabular summary of all data is provided in **Appendix B**.

The general conditions at the times of sampling are first described, followed by a summary of conventional wastewater/reclaimed water indicator parameters. Residual chemical results are then presented, followed by a summary of other analytes that were included in the monitoring effort.

5.2.1 Conditions at Times of Sampling

The flow and temperature conditions on the days of sampling are presented in **Table 5-6**. The conditions during sampling Events 1 and 2 were quite different than those of Events 3 and 4. Significant rainfall occurred within the two weeks leading up to each of the first two events of sampling, whereas the late spring and late summer sampling occurred during much drier times. Raw wastewater temperatures ranged from a low of 14.3 ˚C to a high of 19.2 ˚C.

Other wastewater treatment operating characteristics are also depicted in **Table 5-6**, including the solids retention time, which reflects the average retention time of suspended solids in the biological treatment process. The SRT at the MWRWP was fairly consistent during each sampling event, ranging from 33 to 40 days.

Table 5-6. Martin Way Reclaimed Water Plant Summary of Flow and Operating Conditions

Parameter	Units	Sampling Event 1 (11/12/14)	Sampling Event 2 (02/17/15)	Sampling Event 3 (05/20/15)	Sampling Event 4 (10/07/15)
Flow (Influent)	mgd	1.461	1.388	1.055	1.278
Precipitation (14-day period before sampling)	inches	3.2	4.1	0.3	0.2
Temperature (Raw Wastewater)	˚C	14.3	17.2	17.9	19.2
Mixed Liquor Suspended Solids (MLSS)	mg/L	9,420	11,330	9,240	10,658
Solids Retention Time (SRT)	Days	35	40	33	38
Hydraulic Residence Time (HRT)	Hours	2.5	2.6	2.5	2.5

5.2.2 Conventional Parameters

The quality of reclaimed water and efficacy of treatment processes can be evaluated by examining the concentration of nutrients, and other water quality indicator parameters comparing the results with the Ecology discharge permit limitations. A summary of this type of information is provided in **Table 5-7**.

As can be seen by these data, the MWRWP produces high quality reclaimed water that consistently meets permit requirements. BOD is less than approximately 2.0 mg/L on average and TSS is less than 0.2 mg/L. Turbidity is maintained at an average of 0.07 NTU.

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Table 5-7. Martin Way Reclaimed Water Plant Summary of Conventional Parameters

Parameter	Unit	MRL	Ecology Permit Limit (Average Monthly)	Sampling Event 1 (11/14)		Sampling Event 2 (02/15)		Sampling Event 3 (05/15)		Sampling Event 4 (10/15)		2015 Annual Average of Reclaimed Water Concentrations [1]
				Influent Wastewater	Reclaimed Water	Influent Wastewater	Reclaimed Water	Influent Wastewater	Reclaimed Water	Influent Wastewater	Reclaimed Water	
Parameters with Permit Limits												
Biochemical Oxygen Demand (BOD_5)	mg/L	3	20	320 J	1.1 J	280	ND	260	ND	220 J	ND	2.03
Total Suspended Solids (TSS)	mg/L	10	30	210	ND	200	ND	180	ND	180	ND	0.2
Turbidity [2]	NTU	0	0.2	--	0.09	--	0.08	--	0.07	--	0.06	0.07
Nitrogen												
Total Nitrogen	mg/L	0.2	10	63	6.7	73	9.5	80	6.8	80	8.6	7.73
Nitrate (as N)	mg/L	0.1	N/A	ND (<0.2)	4.6	ND (<0.2)	8.7	ND (<0.2)	5.4	ND (<0.2)	7.5	6.36
Ammonia (as N)	mg/L	0.05	N/A	44 J+	1.1	40	0.82	59	0.33	44	1.1	1.09
Dissolved Oxygen	mg/L	N/A	Measurable	2.48	5.46	2.03	5.56	1.9	4.2	3.74	5.35	3.92
Total Coliform	MPN/ 100 mL	1	2.2	>241,960 J	<1 J	>241,960	<1	>241,960	<1	>241,960	3	0
pH	Units	N/A	6.0-9.0	7.82	7.21	7.68	7.06	7.62	7.03	7.62	7.21	7.09
Other Parameters												
Total Organic Carbon	mg/L	0.3	N/A	92	6.4	94	13	93	6.4	110	5	--
Dissolved Organic Carbon	mg/L	0.3	N/A	64	5.5	58	5.9	42	6.5	56	5.1	--
Biodegradable Dissolved Organic Carbon	mg/L	0.3	N/A	24	0.76 J+	23	0.62 J+	ND (<1.5)	ND (<0.6)	27	0.5	--
Total Phosphorus	mg/L	0.02	N/A	8.2	3.6	9.9	3.9	9.9	3.2	9	3.8	--
Orthophosphate	mg/L	0.01	N/A	4.8	3.3	6	3.1	6.1	3	4.5	3.1	--

Notes:
ND = Not Detected (i.e., not detected above the method MRL); ND (<#) = Not Detected and Minimum Reporting Limit (MRL) is higher than the method MRL due to dilutions; -- = Analyte not Analyzed; N/A = Not Applicable; MPN = Most Probable Number
Data Qualifiers: J = estimated value; J+ = estimated value, biased high
(1) Annual average from LOTT sampling (spreadsheet for 2015 data); not from Study sampling.
(2) All values from HDR field sampling, except for turbidity which was taken from LOTT reported data.

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Total nitrogen concentrations were observed to be within the permit limit of 10 mg/L during all events, though levels approached that limit in Events 2 and 4. Nitrate concentrations ranged from 4.6 to 8.7 mg/L throughout the events.

Other indicators of reclaimed water quality are also presented in **Table 5-7**. For example, TOC ranged from 5.0 to 13 mg/L, and total phosphorus ranged from 3.2 to 3.9 mg/L. These results are similar to those of the BIRWP.

5.2.3 Residual Chemicals

Table 5-8 summarizes the numbers of detections of residual chemicals at the various sampling locations studied at the MWRWP. Out of a total of 127 such chemicals analyzed for, up to 65 were detected in raw influent wastewater, while up to 47 were detected in reclaimed water. The greatest numbers of detections in both wastewater and reclaimed water occurred during Event 1, a trend similar to that observed in the BITP/BIRWP data.

Table 5-8. Martin Way Reclaimed Water Plant Summary of Residual Chemical Detections

	Sampling Event 1 (11/14)	Sampling Event 2 (02/15)	Sampling Event 3 (05/15)	Sampling Event 4 (10/15)	Average
Total Number of Analytes (1)	127	127	127	127	127
Detections in Wastewater	65	49	49	44	52
Detections in Reclaimed Water	47	27	30	30	34
Detections in Water Entering Wetlands	25	--	--	28	27
Detections in Water Exiting Wetlands/Entering Recharge Basins	44	26	23	29	31

Notes:
-- = Not analyzed
(1) Includes all Residual Chemicals, PFCs, PBDEs, EDB, and DBCP.

Table 5-9 contains the 47 residual chemicals that were detected in reclaimed water in at least one event of sampling. Concentrations observed in wastewater and reclaimed water are reported. Concentrations observed in water entering and exiting the wetland ponds are contained within the complete tabular summary in **Appendix B**, along with the qualifiers for all data.

A comparison of the concentrations in reclaimed water versus wastewater is also provided for each chemical in each event. This cannot be considered a fully accurate depiction of constituent removal, or treatment effectiveness, because sampling was not “flow paced” in an attempt to sample the same volume of water as it progressed as discrete flow though the wastewater and reclaimed water treatment processes. However, this calculation does provide a general indication as to the relative difference in concentrations between the influent and effluent water at the MWRWP.

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Table 5-9. Martin Way Reclaimed Water Plant Residual Chemicals Detected in Reclaimed Water (in at least one sampling event)

			Event 1 (11/12/2014)			Event 2 (02/17/2015)			Event 3 (05/20/2015)			Event 4 (10/07/2015)		
ANALYTE	UNIT	MRL[(1)]	Wastewater	Reclaimed Water	% Removal	Wastewater	Reclaimed Water	% Removal	Wastewater	Reclaimed Water	% Removal	Wastewater	Reclaimed Water	% Removal
RESIDUAL CHEMICALS														
1,4-Dioxane	ug/L	0.07	0.46 J-	0.72	-57%	0.71	0.73	-3%	0.38	0.73	-92%	0.44	0.71	-61%
1,7-Dimethylxanthine	ng/L	10	*ND*	36	*NC*	1100	*ND*	> 99%	410	*ND*	> 98%	660	*ND*	> 98%
2,4-D	ng/L	5	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	23	16	30%
4-nonylphenol - semi quantitative	ng/L	100	1600 J	180 J	89%	3600 J	*ND UJ*	> 97%	1200 J	670 J	44%	*ND UJ*	110 J	*NC*
4-tert-octylphenol	ng/L	50	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	230	*ND*	> 78%	*ND*	73	*NC*
Acesulfame-K	ng/L	20	24000	220	99%	54000	850	98%	57000	830	99%	300000	180	99%
Acetaminophen	ng/L	5	42000	7	99%	120000	*ND*	> 99%	98000	*ND*	> 99%	--	*ND*	*ND*
Atenolol	ng/L	5	640	36 J-	94%	3000	110	96%	3200	75	98%	1500 J	62 J	96%
Butalbital	ng/L	5	*ND*	11	*NC*	8.4	7.3	13%	17	9.8	42%	*ND*	9.5	*NC*
Carbamazepine	ng/L	5	250	200	20%	580	300	48%	490	240	51%	230	190	17%
Carisoprodol	ng/L	5	*ND*	10	*NC*	*ND*	110	*NC*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Chloridazon	ng/L	5	*ND*	9.2	*NC*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Cotinine	ng/L	10	1900	17	99%	3600	23	99%	5200	54	99%	1800	13	99%
Cyanazine	ng/L	5	*ND*	6	*NC*	5.6	*ND*	> 11%	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
DACT	ng/L	5	*ND*	12	*NC*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
DEET	ng/L	10	210	11	95%	*ND*	140	*NC*	370	41	89%	390	*ND*	> 97%
Dehydronifedipine	ng/L	5	5.4	*ND*	> 7%	*ND*	*ND*	*ND*	*ND*	8.7	*NC*	*ND*	*ND*	*ND*
Diazepam	ng/L	5	7.5	*ND*	> 33%	*ND*	9.3	*NC*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Diclofenac	ng/L	5	*ND*	*ND*	*ND*	170	*ND*	> 97%	*ND*	55	*NC*	180	9.6	95%
Diuron	ng/L	5	5.2	6.5	-25%	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Dilantin	ng/L	20	170	92	46%	*ND*	72	*NC*	690	120	83%	*ND*	*ND*	*ND*
Diltiazem	ng/L	5	120	18	85%	150	*ND*	> 97%	73	5.6	92%	32	*ND*	> 84%
Erythromycin	ng/L	10	100	16 J+	84%	37	*ND*	> 73%	270	*ND*	> 96%	*ND*	*ND*	*ND*
Flumeqine	ng/L	10	510	65	87%	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Fluoxetine	ng/L	10	*ND*	65 J+	*NC*	*ND*	62	*NC*	48	26	46%	85	35	59%
Gemfibrozil	ng/L	5	1100	94	91%	3700	*ND*	> 99%	7100	130	98%	14000	19	99%
Ibuprofen	ng/L	10	460	*ND*	> 98%	21000	*ND*	> 99%	*ND*	*ND*	*ND*	2900	25	99%
Iohexal	ng/L	10	1800	240	87%	15000	410	97%	2600	860	67%	13000	270	98%
Iopromide	ng/L	5	17	9.1	46%	22	61	-177%	7.6	23	-203%	12000	510	96%
Ketorolac	ng/L	5	7.9	14	-77%	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Lidocaine	ng/L	5	58	55	5%	690	*ND*	> 99%	220	73	67%	180	12	93%
Lopressor	ng/L	20	370	280	24%	*ND*	190	*NC*	1100	190	83%	*ND*	290	*NC*
Meprobamate	ng/L	5	55	31	44%	68	60	12%	*ND*	*ND*	*ND*	*ND*	17	*NC*
Metformin	ng/L	10	29000	190	99%	6800	61	99%	220000	2600	99%	180000	2200	99%
Naproxen	ng/L	10	10	25	-150%	5200	*ND*	99%	460	32	93%	69000	*ND*	99%
Nifedipine	ng/L	20	58 J	20 J	66%	64 J	*ND UJ*	> 69%	*ND UJ*	*ND UJ*	*ND*	*ND UJ*	*ND UJ*	*ND*
Oxolinic acid	ng/L	10	190	36	81%	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Pentoxifylline	ng/L	5	*ND*	*ND*	*ND*	820	7.6	99%	*ND*	*ND*	*ND*	210	*ND*	> 98%
Primidone	ng/L	5	33	64 J+	-94%	280	190	32%	220	130	41%	170	170	0%

			Event 1 (11/12/2014)			Event 2 (02/17/2015)			Event 3 (05/20/2015)			Event 4 (10/07/2015)		
ANALYTE	**UNIT**	**MRL[(1)]**	**Wastewater**	**Reclaimed Water**	**% Removal**	**Wastewater**	**Reclaimed Water**	**% Removal**	**Wastewater**	**Reclaimed Water**	**% Removal**	**Wastewater**	**Reclaimed Water**	**% Removal**
Quinoline	ng/L	5	32	7.8	76%	270	*ND*	> 98%	140	28	80%	250	*ND*	> 98%
Simazine	ng/L	5	11	6.1	45%	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Sucralose	ng/L	100	100000	52000	48%	62000	35000	44%	89000	68000	24%	410000	50000	88%
Sulfadiazine	ng/L	5	*ND*	14	*NC*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Sulfamethoxazole	ng/L	5	1800	320	82%	2200	19	99%	1600	*ND*	> 100%	1800	87	95%
TCEP	ng/L	10	110	39 J-	65%	47	120	-155%	*ND*	130	*NC*	*ND*	120	*NC*
TCPP	ng/L	100	1000	240	76%	1000	560	44%	740	200	73%	1100	270	75%
TDCPP	ng/L	100	360	190	47%	360	230	36%	*ND*	*ND*	*ND*	510 J	130	75%
Theobromine	ng/L	10	1100	*ND*	> 99%	27000	66	99%	19000	*ND*	> 100%	710	*ND*	> 99%
Thiabendazole	ng/L	5	130	200	-54%	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Testosterone	ng/L	5	15	*ND*	> 67%	*ND*	6.1	*NC*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Triclosan	ng/L	10	570	*ND*	> 98%	1100	*ND*	> 99%	480	13	97%	1500	*ND*	> 99%
Trimethoprim	ng/L	5	180	8.3	95%	530	*ND*	> 99%	720	13	98%	390	*ND*	> 99%
PFCs														
Perfluoro octanoic acid - PFOA	ng/L	5	5.5 J	16 J	-191%	*ND*	20	*NC*	*ND*	*ND*	*ND*	*ND*	16	*NC*
Perfluoro-1-butanesulfonate	ng/L	5	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	7.3	*NC*
Perfluoro-1-butanesulfonic acid	ng/L	5	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	9.6	*NC*
Perfluoro-n-hexanoic acid	ng/L	5	14	23	-64%	5.2	81	-1458%	*ND*	18	*NC*	12	46	-283%
Perfluoropentanoic acid	ng/L	5	74	29	61%	--	--	*NC*	7.1	31	-337%	--	79	*NC*
PBDEs/EDB/DBCP														
Fipronil	ng/L	2	2.7 J-	51	-1789%	--	--	*NC*	2.9	36	-1141%	*ND*	*ND*	*ND*
Dibromochloropropane (DBCP)	ug/L	0.01	*ND*	0.011	*NC*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*

Notes:
MRL = Minimum Reporting Level; ND = Not Detected above MRL; ND (<#) = Not Detected and MRL is higher than the method MRL due to dilutions;
-- = Analyte not Analyzed; NC = Not Calculated. Analyte was not detected in wastewater, but was detected in reclaimed water.
mg/L = milligrams per liter (ppm); µg/L = micrograms per liter (ppb); ng/L = nanograms per liter (ppt)
Data Qualifiers: J = estimated value; J+ = estimated value, biased high; J- = Estimated Value, biased low; UJ = non-detect (estimated)
PFC = Perfluorinated Compound; PBDE = Polybrominated Diphenyl Ether; VOC = Volatile Organic Compound
% Removal = Difference between concentration in Reclaimed Water and Wastewater. Percent removals are considered estimates.
Positive values indicate Reclaimed Water concentration less than Wastewater concentration.
Negative values indicate Reclaimed Water concentration greater than Wastewater concentration.
Values preceded by ">" indicate the analyte was not detected in Class A Reclaimed Water. Therefore, percent removal is calculated based on MRL.
(1). Listed MRLs are for undiluted samples only.

Similar to the BITP/BIRWP data, in some instances the reclaimed water concentration is depicted as being higher than that in wastewater (indicated in **Table 5-9** by negative percent removal values). In a majority of such cases, this is due to the increased potential for signal suppression (i.e., the presence of certain organic compounds that "mask" or "hide" the presence of other organic compounds that occur at much lower concentrations) in the LC-MS-MS analysis of the complex wastewater matrix, as compared to the reclaimed water matrix. As described in the data validation report (**Appendix C**), surrogate spikes were used for some chemicals analyzed by EPA methods, so as to determine extraction recoveries. In the case of some chemicals (e.g., 1,4-dioxane, fipronil), surrogate recoveries were low in the wastewater samples. In these situations, the results were qualified as estimates. However, this quality control method is not employed with the laboratory's method, which is used for the majority of the residual chemicals. Yet, because of known signal suppression potential in wastewater matrices, the calculated percent removals depicted in **Table 5-9** should be considered estimates.

In general, there are no significant trends observed in the data, such as reclaimed water concentrations being notably higher in one event versus others. In most cases, chemicals detected in more than one event were observed at similar concentrations. Two notable exceptions to this are Primidone (observed at 64 ng/L in reclaimed water in Event 1, while its levels averaged 163 ng/L for the three subsequent events), and Metformin (concentrations of which varied greatly from 61 to 2,600 ng/L).

Sixteen chemicals (of the 47 listed in **Table 5-9**) were detected in reclaimed water in all four events. **Table 5-10** lists this subset of 16 chemicals, along with the range of concentrations observed and average percent removal between reclaimed water and wastewater. The chemicals routinely present at the highest concentrations are the artificial sweeteners sucralose and acesulfame-K, metformin, 1,4-dioxane, and the x-ray contrast agent iohexal. Atenolol and cotinine were present in reclaimed water but at concentrations significantly less than (i.e., less than 80% of) those in raw wastewater. The following chemicals were observed to be present at higher concentrations in reclaimed water than in wastewater (as indicated by negative percent removals in **Table 5-10**): 1,4-dioxane, iopromide, primidone, TCEP, and Perfluoro-n-hexanoic acid. As noted previously, this could be a function of the concentrations in wastewater being underestimated due to signal suppression in the LC-MS-MS analysis. It could also reflect little to no removal through the treatment process (i.e., concentrations being similar in raw wastewater and reclaimed water). Of those chemicals for which positive percent removals were determined, the following had the smallest differences in concentrations between raw wastewater and reclaimed water, thereby indicating resistance to removal through the reclaimed water treatment processes: butalbital (28%) and carbamazepine (34%).

Table 5-10. Martin Way Reclaimed Water Plant Residual Chemicals Detected in Reclaimed Water (in all sampling events)

Detected Chemical	Range of Concentration (ng/L)	Average Concentration (ng/L)	Average % Removal (Reclaimed Water Compared to Wastewater)
1,4-Dioxane	710-730	723	-53
Acesulfame-K	180-850	520	99
Atenolol	36-110	71	96
Butalbital	7.3-11	9	28
Carbamazepine	190-300	233	34
Cotinine	13-54	27	99
Fluoxetine	35-65	47	53
Iohexal	240-860	445	87
Iopromide	9.1-510	151	-60
Lopressor	190-290	238	54
Metformin	61-2600	1263	99
Primidone	64-190	139	-5
Sucralose	35000-68000	51250	51
TCEP	39-130	102	-45
TCPP	200-560	318	67
Perfluoro-n-hexanoic acid	18-81	42	-602

Notes:
Negative values indicate that the value in reclaimed water was greater than that in wastewater (and in some sampling events, the analyte may not have been detected in wastewater).

5.2.4 Other Parameters

A wide range of additional parameters were analyzed during this effort. All data are presented in the tabular summary in **Appendix B**. Summaries are provided below.

Disinfection Byproducts

DBPs were observed in reclaimed water, likely a result of added chlorine reacting with organic matter in the treated wastewater. TTHMs ranged from 15 to 21 µg/L, comprised mainly of chloroform and bromodichloromethane. HAAs ranged from 32 to 41 µg/L. DBP concentrations were fairly consistent amongst the events.

Pesticides/Herbicides

In addition to the few pesticides and herbicides that were analyzed for in the suite of residual chemicals, the complete list of such compounds included in EPA Methods 505 and 515.4 were also analyzed. One detection was observed in reclaimed water: dalapon, at 1.8 µg/L in Event 4.

Volatile and Semivolatile Organic Compounds

The full suite of analytes included in EPA Methods 524.2 (VOCs) and 525.2 (SVOCs) were analyzed for. One detection was observed in reclaimed water: hexachlorocyclopentadiene, at 0.052 µg/L in Event 4.

Metals

No dissolved metals, as analyzed for in EPA Methods 200.8 and 245.1, were detected in reclaimed water in all four events. Four metals were detected in three events. Average concentrations of barium, copper, manganese, and zinc in reclaimed water were 8.3 µg/L, 11 µg/L , 26 µg/L, and 83 µg/L, respectively.

Metals analyzed for in EPA Method 200.7, such as calcium, iron, and magnesium, were consistently detected in reclaimed water at concentrations typical of Class A reclaimed water.

5.2.5 Effect of Wetland Ponds on Reclaimed Water Quality

As discussed in Section 3, Class A reclaimed water produced at the MWRWP is conveyed through approximately three miles of pipeline north, where the water then enters the Hawks Prairie Ponds. The water flows through the five lined wetlands in series, over the course of approximately 20 days (at an average reclaimed water flow rate to the ponds of 0.5 mgd), prior to then infiltrating the shallow aquifer via the recharge basins. **Figure 5-2** provides a schematic illustration of this.

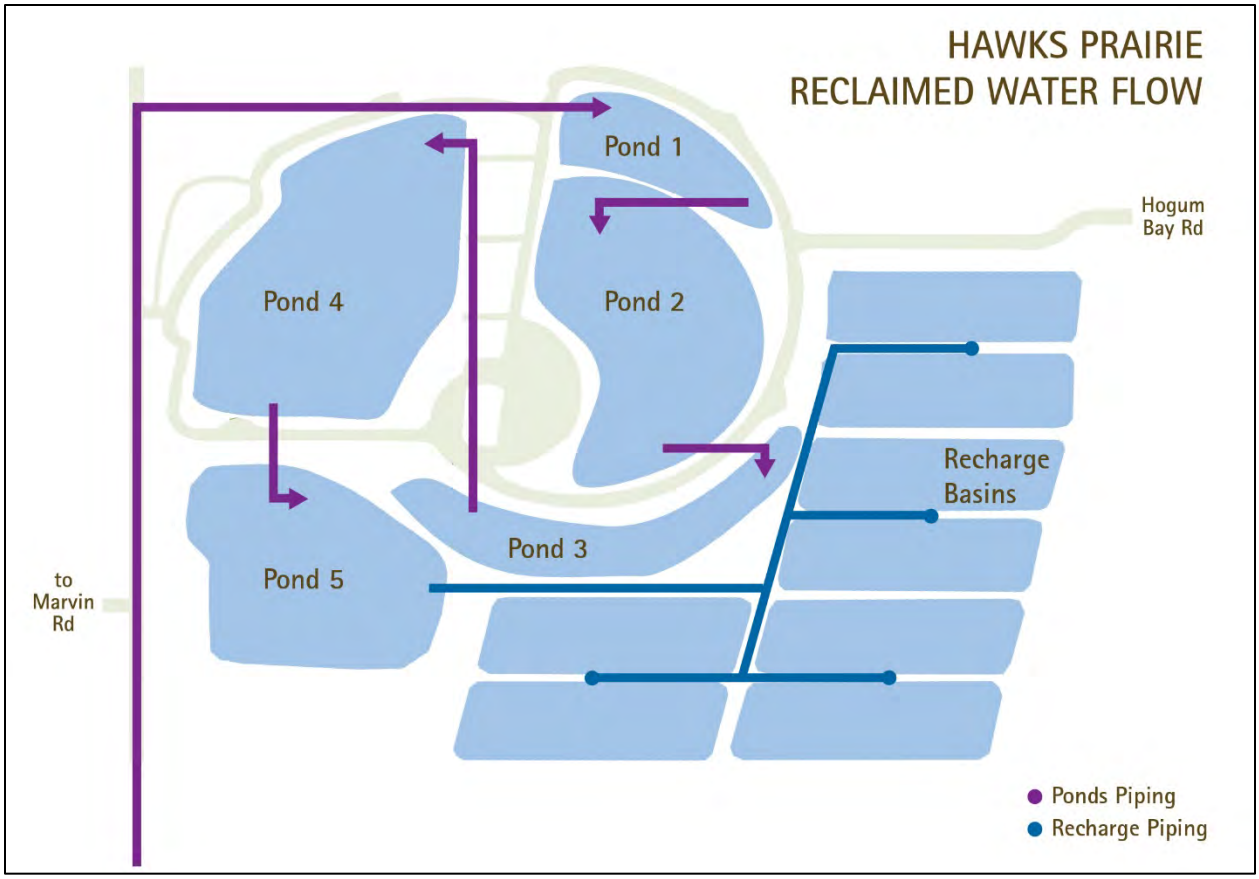


Figure 5-2. Flow of Water from MWRWP to Hawks Prairie Infiltration Basins

During Events 1 and 4, sampling was conducted of the water entering and exiting the wetland ponds, in order to assess impacts upon water quality imparted by the wetlands. Of the 16 residual chemicals detected in reclaimed water during all four events (**Table 5-10**), most demonstrated no appreciable changes or trends in observed concentrations between the pre- and post-wetlands samples. Other studies have shown wetlands to attenuate some residual chemicals, such as gemfibrozil and ibuprofen (through biodegradation, photolysis, and sorption), while other chemicals such as primidone and TCEP have been shown to exhibit low removals (Guo et al., 2010). It is noted that the Hawks Prairie Ponds do have significant algal and macrophyte growth at times, which would impede photolysis.

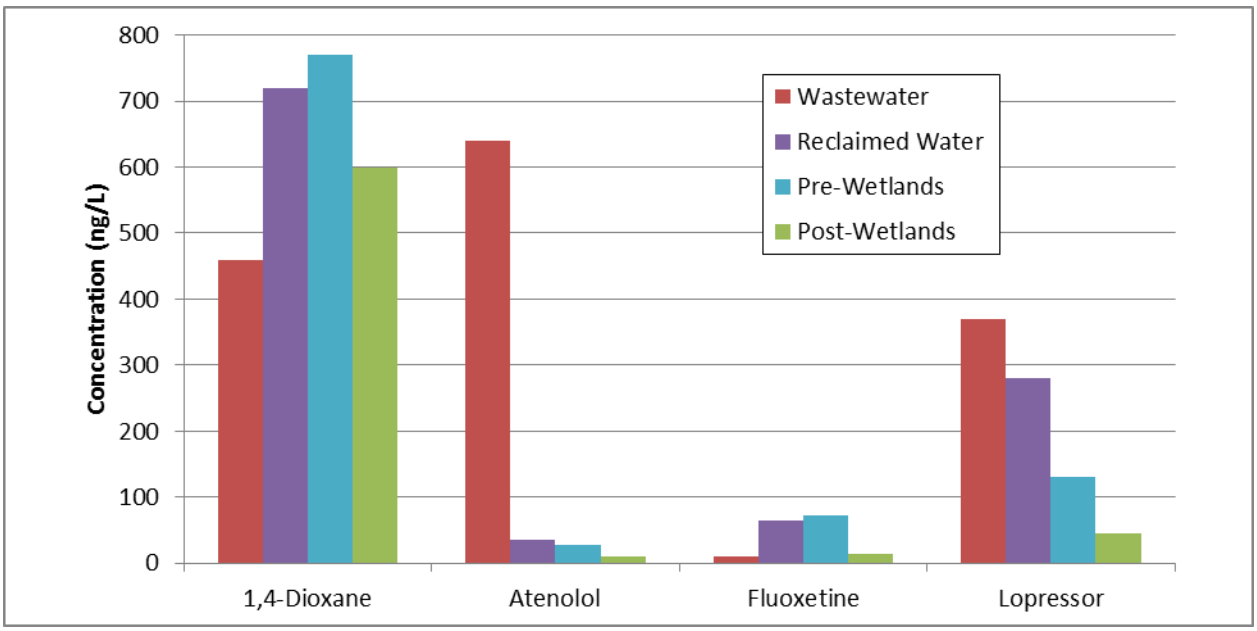
Results at the Hawks Prairie Ponds are variable for many chemicals, such as acesulfame-K, sucralose, metformin, TCEP, and TCPP (meaning in some events pre-wetland concentrations are greater than post-wetland concentrations, while in other events the reverse is true). A trend of post-wetland concentrations being less than pre-wetland concentrations in all sampling events was observed for the following four chemicals: 1,4-dioxane, atenolol, fluoxetine, and lopressor. These results suggest that additional removal or transformation of these chemicals may occur within the wetlands. However, it is noted that because raw wastewater concentrations for three of these chemicals are lower than the post-wetlands concentrations

(i.e., 1,4-dioxane in both events, and fluoxetine and lopressor in one event each), the effect of the wetlands on these chemicals is uncertain. **Figure 5-3** summarizes the results for these chemicals for Events 1 and 4.

It is also noted that total nitrogen and nitrate concentrations are decreased through the wetlands. For example, nitrate concentrations in the Class A reclaimed water average 6.6 mg/L over the four events, compared with concentrations in water discharging from the wetland ponds averaging 2.8 mg/L. Phosphorus concentrations remain relatively unchanged in pre- and post-wetland samples. Nitrate removal is primarily a result of biological processing and nitrification/denitrification of nitrogen in the wetlands, whereas phosphorus removal is mainly through sorption to clay substrate. It is fairly common for phosphorus removal efficiency in wetlands to decrease over time as the clay sorption capacity decreases over time.

The hormone Estrone, which was not detected in reclaimed water during any sampling event, was detected at low concentrations (0.75 – 1.9 ng/L) in post-wetlands water during three of the sampling events.

Event 1 (11/12/2014)



Event 4 (10/07/2015)

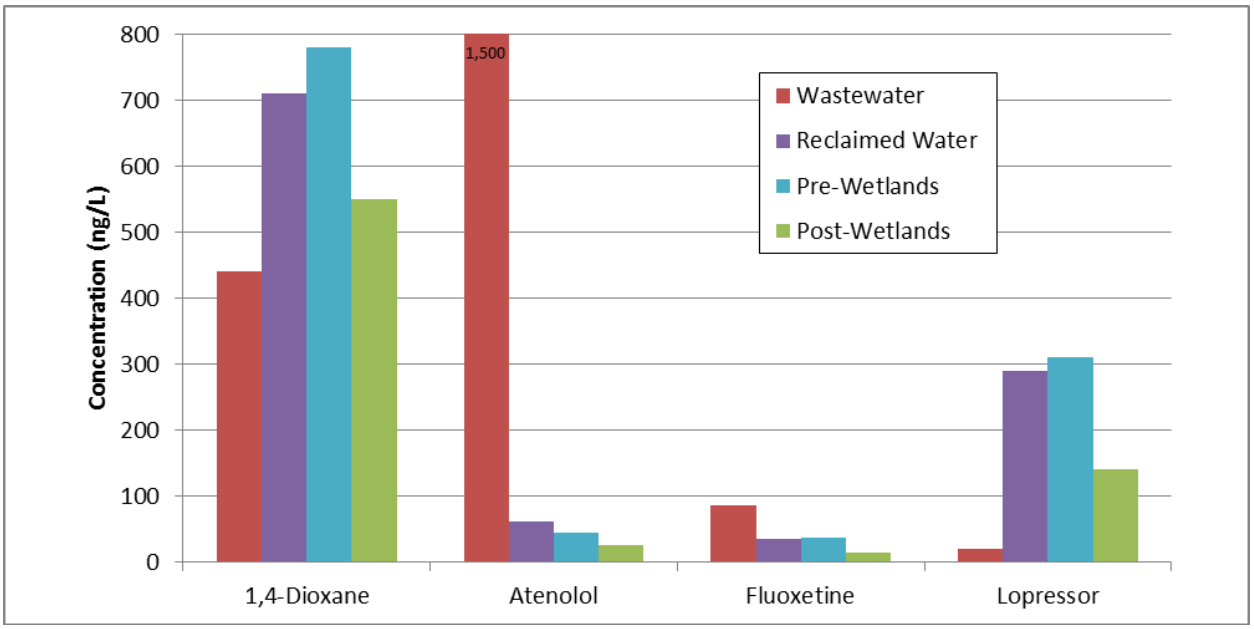


Figure 5-3. Comparison of Pre-Wetlands and Post-Wetlands Water Quality for Select Residual Chemicals (Events 1 and 4)

6.0 Discussion

6.1 Summary of Results

Characterization of reclaimed water produced by LOTT was conducted through quarterly sampling of wastewater and reclaimed water, between November 2014 and October 2015, at LOTT's two reclaimed water treatment facilities: the BIRWP and the MWRWP. The characterization was focused on influent wastewater and reclaimed water, but also involved sampling of LOTT's secondary effluent, which is produced at the BITP and is discharged into Puget Sound. Reclaimed water entering and exiting the Hawks Prairie Wetland Ponds was also analyzed.

The results of this characterization effort indicate that:

- LOTT's two reclaimed water treatment facilities produce high quality Class A reclaimed water that consistently meets permit requirements with respect to conventional wastewater treatment parameters like BOD and TSS, nitrogen removal, and pathogen reduction.
- Many residual chemicals detected consistently in raw wastewater were removed to below detection limits in LOTT's reclaimed water. **Table 6-1** provides the list of chemicals for which this pattern was exhibited. These chemicals were present in wastewater in at least three of the four sampling events, but were removed to levels below detection in reclaimed water in at least three of the sampling events. These data indicate that LOTT's treatment processes are highly effective at removing these particular chemicals.

Table 6-1. Residual Chemicals Consistently Observed in LOTT Wastewater for which LOTT's Treatment Facilities Exhibit Efficient Removal to Non-Detect Levels

Residual Chemical	BIRWP	MWRWP
1,7-Dimethylxanthine	x	x
Acetaminophen	x	x
Albuterol	x	
Amoxicillin	x	x
Andorostenedione		x
Bisphenol A		x
Butalbital	x	
Butylparben	x	x
Caffeine	x	x
Cimetidine	x	x
Diltiazem	x	
Erthromycin	x	x
Estradiol-17	x	
Estrone	x	x
Ethylparaben	x	x
Ibuprofen	x	x
Lidocaine	x	
Naproxen	x	
Nonylphenol Diethoxylate	x	
Progesterone		x
Propylparaben	x	x
Triclosan	x	x
Trimethoprim	x	

- The occurrence of observed residual chemicals in the treated reclaimed water was fairly consistent at both facilities, in terms of the chemicals observed most frequently and their concentrations, as summarized in **Table 6-2**. Residual chemical removal efficiencies were also similar at both facilities. A notable exception to this general finding is iohexal. Detected at both facilities, the concentration of this x-ray contrast agent was markedly higher in BIRWP reclaimed water than in MWRWP reclaimed water. Removal efficiencies were also greater at the MWRWP (i.e., 87%, compared to 31% at BIRWP). This could reflect the presence of more hospital and clinic wastewater in the BITP influent as compared to that of the MWRWP.

Table 6-2. Comparison of Concentrations and Removals of Residual Chemicals Detected in Reclaimed Water in all Events at Either BIRWP and MWRWP

Detected Chemical	BIRWP		MWRWP	
	Range of Concentration (ng/L)	Average % Removal	Range of Concentration (ng/L)	Average % Removal
1,4-Dioxane	390-450	-37	710-730	-53
Acesulfame-K	23-13,000	86	180-850	99
Atenolol	180-230	86	36-110	96
Butalbital	ND-5.9	28	7.3-11	28
Carbamazepine	220-330	32	190-300	34
Cotinine	17-130	98	13-54	99
Fluoxetine	31-65	50	35-65	53
Gemfibrozil	12-710	77	ND-130	97
Iohexal	5,000-14,000	31	240-860	87
Iopromide	15-80	-91	9.1-510	-60
Lopressor	150-220	49	190-290	54
Meprobamate	22-52	14	ND-60	28
Metformin	31-1,500	99	61-2,600	99
Primidone	130-200	38	64-190	-5
Sucralose	18,000-50,000	48	35,000-68,000	51
TCEP	53-200	-87	39-130	-45
TCPP	500-740	1	200-560	67
TDCPP	210-310	-41	ND-230	53
Perfluoro-n-hexanoic acid	ND-17	NC	18-81	-602

Notes:
NC = Not Calculated. Analyte was not detected in wastewater in any event, so the calculation is not possible.
ND = Not Detected in at least one event. No ND indicates the chemical was detected in reclaimed water in all four sampling event..
Negative values indicate that the value in reclaimed water was greater than in wastewater.

- At both facilities, higher detections of residual chemicals were observed in both wastewater and reclaimed water in Event 1, as compared with the other events. This observation may be linked with biological nutrient removal operation at the BIRWP and by temperature at the MWRWP.
    - At the BIRWP, for residual chemicals that were detected in Event 1 as well as in at least one additional event, concentrations in reclaimed water were often higher in Event 1, and removal efficiencies lower, as compared to subsequent events. These results may correlate with the BITP biological nutrient removal (BNR) process being in full operation during Events 2 to 4. By contrast, the plant was not in full denitrifying mode during Event 1. As suggested by other studies, BNR increases residual chemical removal efficiency, largely due to the longer solids

retention times (SRTS) associated with such processes. Longer SRTs provide more time for microbial degradation processes to occur, and support slower-growing microorganisms that may preferentially metabolize or co-metabolize residual chemicals (Stephenson 2007, Lubliner 2010).

- At the MWRWP, raw wastewater temperatures were higher in Rounds 2 to 4 as compared to Round 1 (i.e., 17.2-19.2°C versus 14.3 °C). It is possible that the fewer detections observed at the MWRWP during times of higher temperatures were a result of greater biological activity and increased removal. Such a correlation cannot be made at the BITP/BIRWP, where wastewater temperatures were consistent during Events 1 and 2, and then higher during Events 3 and 4. Concentrations of residual chemicals observed in all events at the MWRWP were relatively consistent, unlike at the BIRWP where Event 1 concentrations were higher in many cases (as noted above).

- The residual chemicals detected at the highest concentrations in LOTT's reclaimed water in all events at both facilities are the artificial sweeteners sucralose and acesulfame-K, the solvent 1,4-dioxane, the anti-diabetic medication metformin, and the x-ray contrast agent iohexal.
- The residual chemicals consistently present in reclaimed water at both facilities, and for which LOTT's treatment processes had removal efficiencies less than the frequently used industry benchmark of 80%[1] (i.e., those that appear to be the most recalcitrant through LOTT's treatment processes) are listed below. These include select pharmaceuticals, multiple x-ray contrast agents, and multiple flame retardants.
  - 1,4-Dioxane
  - Carbamazepine
  - Fluoxetine
  - Iohexal
  - Iopromide
  - Lopressor
  - Primidone
  - Sucralose
  - TCEP
  - TCPP
- Residual chemicals that were consistently present in reclaimed water, (but for which LOTT's treatment processes had removal efficiencies greater than 80%) are:
  - Acesulfame-K
  - Atenolol

[1] Or for which removal efficiencies could not be calculated due to raw wastewater concentrations reported as being lower than in reclaimed water.

  - Cotinine
  - Metformin

- The quality of BITP secondary effluent is consistent with that of BIRWP reclaimed water, particularly with respect to residual chemicals. For those chemicals that are present in both waters, concentrations are typically similar, suggesting that the majority of residual chemical removal is occurring in the BITP treatment processes, with little additional removal occurring in the filtration and chlorine disinfection steps added at the BIRWP. Three chemicals are exceptions to this general finding. For gemfibrozil, sulfamethoxazole, and trimethoprim, concentrations in reclaimed water were notably less than those in secondary effluent. There is no conclusive reason for these differences. Three mechanisms that could potentially contribute to the differences are: 1) the additional time involved with the filtration/disinfection treatment processes associated with the reclaimed water provides more time for biodegradation to occur; 2) the filtration process removes colloidal organic matter to which these compounds are bound; and 3) chlorination oxidizes the compounds. Of these three mechanisms, it is most likely that the first two contribute most significantly to the observed differences, given the nature of these compounds
- The Hawks Prairie wetland ponds reduce the total organic carbon and nitrogen content in reclaimed water before it is infiltrated through the recharge basins, but have a minimal impact on the concentrations of residual chemicals. Of the 16 residual chemicals detected in MWRWP reclaimed water during all four events, most demonstrated no appreciable changes or trends in observed concentrations between the pre- and post-wetlands samples. However, it is noted that the pre- and post-wetlands grab samples were obtained typically within the space of one hour and were not timed to reflect sampling of the same aliquot of water as it traveled through the wetlands (i.e., the sampling does not directly take into account the approximately 20 day residence time in the wetlands). However, this sampling protocol is considered adequate to provide a general characterization of water quality before and after the time spent in the wetlands on a given day.

6.2 Comparison with Other Studies of Residual Chemicals

Table 6-3 provides a high-level summary comparison of the results from this characterization effort with results from other studies that have evaluated the occurrence of residual chemicals in treated wastewater and reclaimed water. The concentrations of many of the residual chemicals that were consistently observed in LOTT's reclaimed water fall within the range of concentrations reported for other treatment facilities. This comparison is general in nature, as there are differences in the treatment processes employed by the facilities considered in the literature.

The following are specific observations:

- The concentrations of the following chemicals were lower in LOTT's reclaimed water than in other reported treated wastewater and reclaimed water:

  - Acesulfame-K
  - Atenolol
  - Iopromide
  - Lopressor
  - TCEP
  - TDCPP

- The concentrations of the following chemicals were higher in LOTT's reclaimed water than in other reported treated wastewater and reclaimed water:
  - Iohexal
  - Sucralose

- For the chemicals of comparison where percent removal data were available in the literature, LOTT's removal efficiencies are greater than the literature for three compounds (atenolol, carbamazepine, and lopressor), less than the literature for iohexal, and the same as the literature value for gemfibrozil.
- As noted in Section 6.1, the removal efficiencies of LOTT's facilities are greater than the frequently used industry benchmark of 80% for some chemicals, and lesser than this benchmark for other chemicals. It is noted that in the instances where these data are reported in the cited literature, removal efficiencies are often less than 80%, as shown in **Table 6-3**. This reflects the focus that many studies have upon chemicals that are known to be recalcitrant to wastewater treatment. For those chemicals with data available for comparison, LOTT's removal efficiencies, while still below the 80% benchmark, were typically greater than those reported in the literature (e.g., for atenolol, carbamazepine, and lopressor).

Table 6-3. Comparison of Concentrations and Removals of Residual Chemicals Detected in Reclaimed Water in all Events at Either BIRWP and MWRWP with Other Studies

Detected Chemical	Study Results (BIRWP/MWRWP)		Literature Values		Literature Sources[(1)]
	Range of Concentration (ng/L)	Average % Removal	Range of Concentration (ng/L)	Average % Removal	
1,4-Dioxane	390-730	(neg)	--	--	
Acesulfame-K	23-13,000	93	20,000	--	f
Atenolol	36-230	91	260-2,440	61	a,b,c,d,e,f,g,h
Butalbital[(2)]	7.3-11	28	--	--	
Carbamazepine	190-330	33	97-1,600	22	a-i
Cotinine	13-130	99	ND-340	--	d,f,g,i
Fluoxetine	31-65	50	8-78	--	c,d,f,h,i
Gemfibrozil[(3)]	12-710	77	ND-1,640	77	a-i
Iohexal	240-14,000	59	41-4,780	89	a,f,g
Iopromide	9.1-510	(neg)	2,700	69	a,e
Lopressor	150-290	52	340-3,900	32	a,c,d,f,g
Meprobamate[(3)]	22-52	14-28	31-1,420	--	b,d,e,f,g,h
Metformin	31-2,600	99	542-82,700	--	d,i
Primidone	64-200	38	90-159	--	e,f,g
Sucralose	18,000-68,000	50	27,000	--	f,g
TCEP	39-200	(neg)	200-1,400	--	e,f,g,i
TCPP	200-740	67	224-7,200	--	b,e,f
TDCPP[(3)]	210-310	-41-53	500	--	f
Perfluoro-n-hexanoic acid[(2)]	18-81	(neg)	15-53	--	d

Notes:
(neg) = Negative percent removal values, because analyte was either not detected in wastewater, or the value in reclaimed water was greater than that in wastewater. See Table 6-2 for values.
-- = Not Found in Reviewed Literature
(1) Literature values were obtained from the following sources:
  (a) EPA (2010). Data from 33 treatment plants.
  (b) Ohlinger, et al (2013). Data from one plant.
  (c) Kostich, et al (2014). Data from 50 treatment plants.
  (d) Meador, et al (2016). Data from two treatment plants.
  (e) Laws, et al (2011). Data from one treatment plant.
  (f) Benskin (2016). Data from one treatment plant.
  (g) Oppenheimer, et al (2010). Data from treatment plants in five states.
  (h) Johnson, et al (2012). Data from three treatment plants, including LOTT.
  (i) Lubliner, et al (2010). Data from three treatment plants, including LOTT.
(2) Detected in all four events at the MWRWP, not at the BIRWP.
(3) Detected in all four events at the BIRWP, not at the MWRWP.

7.0 Conclusions

This effort provides a comprehensive characterization of the reclaimed water produced by LOTT at BIRWP and MWRWP. With respect to the Study's focus area of residual chemicals, LOTT's facilities exhibited good removals of many residual chemicals detected in raw wastewater. Of the 127 total residual chemicals analyzed for, 14 were consistently observed in all sampling events at both facilities.

These data will provide input and focus for future analyses associated with the RWIS, including the human health and ecological risk assessment (Task 3) and the evaluation of alternative treatment processes and related cost/benefit analysis (Task 4).

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Appendix A
Residual Chemical Analyte List

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Residual Chemical	Compound Class	Parameter	Compound Class
1,7-dimethylxanthine	Caffeine Degradate	Ibuprofen	Analgesic-NSAID
2,4-D	Herbicide	Iohexol (Iohexal)	X-ray Contrast agent
4-nonylphenol	Surfactant	Iopromide	X-ray Contrast agent
4-tert-octylphenol	Surfactant	Isobutylparaben	Preservative
Acesulfame-K	Sugar Substitute	Isoproturon	Herbicide
Acetaminophen	Analgesic	Ketoprofen	Anti Inflammatory
Albuterol	Anti Asthmatic	Ketorolac	Anti Inflammatory
Amoxicillin	Antibiotic	Lidocaine	Analgesic
Andorostenedione	Steroid Hormone	Lincomycin	Antibiotic
Atenolol	Beta Blocker	Linuron	Herbicide
Atrazine	Triazine Herbicide	Lopressor	Beta Blocker
Azithromycin	Antibiotic	Meclofenamic Acid	Anti Inflammatory
Bendroflumethiazide	Triazide	Meprobamate	Anti Anxiety
Bezafibrate	Lipid Regulator	Metformin	Antidiabetic
BPA (Bis Phenol A)	Plasticizer	Metazachlor	Herbicide
Bromacil	Herbicide	Methylparaben	Preservative
Butalbital	Analgesic-NSAID	Naproxen	Analgesic-NSAID
Butylparben	Preservative	Nifedipine	Calcium Blocker
Caffeine	Stimulant	Norethisterone	Steroid Hormone
Carbadox	Antibiotic	OUST (sulfameturon methyl)	Herbicide
Carbamazepine	Anti Seizure	Oxolinic acid	Antibiotic
Carisoprodol	Muscle Relaxant	Pentoxifylline	Blood thinner
Chloramphenicol	Antibiotic	Phenazone	analgesic
Chloridazon	Herbicide	Primidone	Anti Convulsant
Chlorotoluron	Herbicide	Progesterone	Steroid Hormone
Cimetidine	H2 Blocker	Propazine	Triazine Herbicide
Clofibric Acid	Herbicide/ Cholestrol drug	Propylparaben	Preservative
Cotinine	Nicotine Degradate	Quinoline	Pesticide/Ind Chem
Cyanazine	Triazine Herbicide	Simazine	Triazine Herbicide
DACT (Diaminochlorotriazine)	Triazine Degradate	Sucralose	Sugar Substitute
DEA (Deethylatrazine)	Triazine Degradate	Sulfachloropyridazine	Sulfa Antibiotic
DEET (N,N-Diethyl-meta-toluamide)	Mosquito Repellant	Sulfadiazine	Sulfa Antibiotic
Dehydronifedipine	Blood Pressure Drug Metabolite	Sulfadimethoxine	Sulfa Antibiotic
DIA (Deisopropylatrazine)	Triazine Degradate	Sulfamerazine	Sulfa Antibiotic
Diazepam	Valium- Antianxiety	Sulfamethazine	Sulfa Antibiotic
Diclofenac	Anti-Inflammatory	Sulfamethizole	Sulfa Antibiotic
Dilantin	Anti-Seizure	Sulfamethoxazole	Sulfa Antibiotic

Residual Chemical	Compound Class	Parameter	Compound Class
Diltiazem	Vasodilator	Sulfathiazole	Sulfa Antibiotic
Diuron	Herbicide	TCEP	Flame Retardant
E2 (17 Beta-Estradiol)	Estrogenic Hormone	TCPP	Flame Retardant
EE2 (17 Alpha-ethynylestradiol)	Contraceptive Hormone	TDCPP	Flame Retardant
Erythromycin	Antibiotic	Testosterone	Steroid Hormone
Estradiol	Estrogenic Horomone	Theobromine	Caffeine Degradate
Estrone	Estrogenic Hormone	Theophylline	Anti Asthmatic
Ethinyl Estradiol - 17 alpha	Estrogenic Hormone	Thiabendazole	Antihelminthic
Ethylparaben	Preservative	Triclocarban	Antibacterial
Flumeqine	Antibiotic	Triclosan	Antibacterial
Fluoxetine	Antidepressant	Trimethoprim	Antibiotic
Furosemide	Diuretic	Warfarin	Anticoagulant
Gemfibrozil	Lipid Regulator		

Appendix B

Tabular Summary of Wastewater/Reclaimed Water Monitoring Results

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				Budd Inlet Reclaimed Water Plant (BIRWP)											
				Sampling Event 1 (11/13/2014)						Sampling Event 2 (02/18/2015)					
				BIRWP-WASTEWATER		BIRWP-SECONDARY		BIRWP-RECLAIMED		BIRWP-WASTEWATER		BIRWP-SECONDARY		BIRWP - RECLAIMED	
ANALYTE	METHOD	UNIT	MRL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
FIELD PARAMETERS															
pH		units	N/A	7.42		7.01		7.16		7.26		5.40		7.10	
Temperature		˚C	N/A	13.9		16.7		17.1		13.1		15.2		15.3	
Specific Conductance		µS/cm	N/A	706.0		537.4		544.2		628.6		461.1		479.7	
Oxidation Reduction Potential (ORP)		mV	N/A	-15.6		288.4		453.1		273.3		485.2		687.2	
Dissolved Oxygen		mg/L	N/A	1.40		6.82		7.20		3.83		5.78		8.37	
Free Cl		mg/L	N/A	0.0		0.0		2.0		0.0		0.0		0.6	
Total Cl		mg/L	N/A	0.0		0.0		2.2		0.0		0.0		1.6	
LABORATORY GENERAL WATER QUALITY PARAMETERS															
Alkalinity	SM 2320B	mg/L	2	220		98		99		190		--		92	
Alkalinity (as HCO3, calc)	SM2330B	mg/L	2	280		--		120		230		--		110	
Carbonate	SM2330B	mg/L	2	*ND*		--		*ND*		*ND*		--		*ND*	
Hydroxide	SM2330B	mg/L	2	*ND*		--		*ND*		*ND*		--		*ND*	
Carbon Dioxide	SM4500-CO2-D	mg/L	2	*ND*		--		*ND*		*ND*		--		7.2	
Specific Conductance	SM2510B	umho/cm	2	710		540		540		600		--		470	
Turbidity	Default	NTU	0	0.99		--		0.99		0.99		--		0.99	
WASTEWATER/RECLAIMED WATER PARAMETERS															
Total Suspended Solids	SM 2540D	mg/L	10	260		*ND*		*ND*		180		--		*ND*	
Total Dissolved Solid	E160.1/SM2540C	mg/L	10	320		330		310		280		--		290	
Total Organic Carbon	SM5310C/E415.3	mg/L	0.3	81		6.7		5.4		110		--		12	
Chemical Oxygen Demand	EPA 410.4	mg/L	5	300		19		13		550		--		12	
Dissolved Organic Carbon - Final	Allgeier, 1996	mg/L	0.3	26		6.1	J	4.1		28		--		7	
Dissolved Organic Carbon - Initial	Allgeier, 1996	mg/L	0.3	51		5.5	J+	4.8	J+	49		--		7.9	
Biochemical Oxygen Demand	SM5210B 405.1	mg/L	3	220	J	*ND*		5		420		--		*ND*	
Biodegradable Dissolved Organic Carbon	Allgeier, 1996	mg/L	0.3	25		*ND*		0.7	J+	21		--		*ND (<3)*	
Bromide	EPA 300.0	ug/L	5	66		170		150		64		--		70	
Chloride	EPA 300.0	mg/L	1	40		62		66		32		--		60	
Fluoride	SM 4500F-C	mg/L	0.05	0.37		0.26		0.23		0.29		--		0.19	
Sulfate	EPA 300.0	mg/L	0.5	23		24		24		17		--		23	
SulfideTotal	SM4500SD/376.2	mg/L	0.05	0.32		*ND*		*ND*		0.3		--		*ND*	
Sulfur Total ICAP	EPA 200.7	mg/L	0.1	570		--		--		290		--		--	
Total Hardness as CaCO3 by ICP (calc)	SM 2340B	mg/L	3	100		--		--		94		--		--	
Total Chlorine	SM 4500-CL G	mg/L	0.1	*ND*		*ND*		2.2	J-	*ND*		--		0.58	J-
Free Chlorine	SM 4500CL-G/HACH	mg/L	0.1	*ND*		*ND*		0.14	J-	*ND*		--		*ND*	
Chloramines	SM 4500CL-G/HACH	mg/L	0.1	*ND*	*UJ*	*ND*	*UJ*	2.1	J-	*ND*	*UJ*	--		0.53	J-
Anion Sum - Calculated	SM 1030E	meq/L	0.001	--		--		--		5		--		4.2	
Cation Sum - Calculated	SM 1030E	meq/L	0.001	--		--		--		4.2		--		--	
Cation Sum - Manual Calculation	SM 1030E	%	0	--		--		--		--		--		--	
Cation/Anion Difference	SM 1030E	%	0	--		--		--		13		--		--	
Cation Balance with NH3		meq/L	0	--		--		--		6.5		--		--	
PATHOGENS															
Total Coliform	SM 9222B	MPN/100 mL	1	>241960	J	4.1	J	9.5	J	>2419600		--		*ND*	
Fecal Coliform	SM 9222D	MPN/100 mL	1	--		*ND*		<1	J	--		--		*ND*	
Fecal Coliform	SM 9222D	CFU/mL	1	>241960	J	--		--		>2419600	J	--		--	
Cryptosporidium	EPA 1623	oocysts/L	NA	1524.39		--		<9.524		--		--		--	
Giardia	EPA 1623	Organism/L	NA	13719.512		--		9.524		--		--		--	
Somatic coliphage titer	FR59#28 1602	P/100mL	1	210000		<1		<1		40000		--		<1	
Male-specific coliphage titer	FR59#28 1602	P/100mL	1	160000		<1		<1		28000		--		<1	
NUTRIENTS															
Nitrate (as Nitrogen)	EPA 300.0	mg/L	0.1	*ND (<0.2)*		4.7		4.6		*ND (<0.2)*		--		2.7	
Nitrite	EPA 300.0	mg/L	0.05	*ND (<0.1)*		*ND (<0.1)*		*ND (<0.1)*		*ND (<0.1)*		--		*ND*	
Nitrate+Nitrite	EPA 300.0	mg/L	0.1	*ND (<0.2)*		4.7		4.6		*ND (<0.2)*		--		2.7	
Ammonia Nitrogen	EPA 350.1	mg/L	0.05	34		1.9		2.9	J+	31		--		0.052	
Kjeldahl Nitrogen	EPA 351.2	mg/L	0.2	51		3.4		4.1		50		--		1.1	
Total Nitrogen	EPA 353-351	mg/L	0.2	51		8.1		8.7		50		--		3.8	
Dissolved Orthophosphate (as P)	4500P-E/365.1	mg/L	0.01	3.7		5.2		4.4		3.2		--		2.8	
Dissolved Total Phosphorus	SM4500-PE/EPA 365.1	mg/L	0.4	4.3		5.4		4.7		3.8	J+	--		3	J
Orthophosphate (as P)	4500P-E/365.1	mg/L	0.01	4.4		4.8		4.8		3.5		--		2.9	
Total Phosphorus	SM4500-PE/EPA 365.1	mg/L	0.02	8.2		5.2		4.6		6.8		--		3.1	
METALS (DISSOLVED)															
Aluminum	EPA 200.8	ug/L	20	50		*ND*		*ND*		31		--		*ND*	
Antimony	EPA 200.8	ug/L	1	*ND*		*ND*		*ND*		*ND*		--		*ND*	
Arsenic	EPA 200.8	ug/L	1	1		1.4		1.6		1		--		1	
Barium	EPA 200.8	ug/L	2	5.6		4.8		4.5		5.8		--		4.2	
Beryllium	EPA 200.8	ug/L	1	*ND*		*ND*		*ND*		*ND*		--		*ND*	
Boron	EPA 200.7	mg/L	0.05	0.11		0.16		0.15		0.1		--		0.14	
Cadmium	EPA 200.8	ug/L	0.5	*ND*		*ND*		*ND*		*ND*		--		*ND*	
Calcium	EPA 200.7	mg/L	1	21		23		23		17		--		18	
Chromium	EPA 200.8	ug/L	1	*ND*		*ND*		*ND*		*ND*		--		*ND*	
Copper	EPA 200.8	ug/L	2	19		4.8		7.6		22		--		7.5	
Iron	EPA 200.7	mg/L	0.02	*ND*		0.054		0.02		0.17		--		0.022	
Lead	EPA 200.8	ug/L	0.5	*ND*		*ND*		*ND*		*ND*		--		*ND*	
Magnesium	EPA 200.7	mg/L	0.1	8		10		10		8		--		8.1	
Manganese	EPA 200.8	ug/L	2	65		62		5.4		62		--		*ND*	
Mercury	EPA 245.1	ug/L	0.2	*ND*		*ND*		*ND*		*ND*		--		*ND*	
Potassium	EPA 200.7	mg/L	1	13		15		14		11		--		11	
Seleniun	EPA 200.8	ug/L	5	*ND*		*ND*		*ND*		36		--		*ND*	
Silica	EPA 200.7	mg/L	0.5	35		37		37		35		--		32	
Silicon	EPA 200.7	mg/L	0.2	16		17		17		16		--		15	
Silver	EPA 200.8	ug/L	0.5	*ND*		*ND*		*ND*		*ND*		--		*ND*	
Sodium	EPA 200.7	mg/L	1	42		57		59		41		--		48	
Thallium	EPA 200.8	ug/L	1	*ND*		*ND*		*ND*		*ND*		--		*ND*	
Zinc	EPA 200.8	ug/L	20	20		49		43		36		--		47	
METALS (TOTAL)															
Aluminum	EPA 200.8	ug/L	20	640		--		--		390		--		--	
Antimony	EPA 200.8	ug/L	1	*ND*		--		--		*ND*		--		--	
Arsenic	EPA 200.8	ug/L	1	1.4		--		--		*ND*		--		--	
Barium	EPA 200.8	ug/L	2	26		--		--		18		--		--	
Beryllium	EPA 200.8	ug/L	1	*ND*		--		--		*ND*		--		--	
Boron	EPA 200.7	mg/L	0.05	0.12		--		--		0.12		--		--	
Cadmium	EPA 200.8	ug/L	0.5	*ND*		--		--		*ND*		--		--	
Calcium	EPA 200.7	mg/L	1	27		--		--		22		--		--	
Chromium	EPA 200.8	ug/L	1	1.2		--		--		*ND*		--		--	
Copper	EPA 200.8	ug/L	2	72		--		--		76		--		--	
Iron	EPA 200.7	mg/L	0.02	0.67		--		--		0.59		--		--	
Lead	EPA 200.8	ug/L	0.5	1.2		--		--		1.2		--		--	
Magnesium	EPA 200.7	mg/L	0.1	9		--		--		9.5		--		--	
Manganese	EPA 200.8	ug/L	2	84		--		--		92		--		--	
Mercury	EPA 245.1	ug/L	0.2	*ND*		--		--		*ND*		--		--	
Nickel	EPA 200.8	ug/L	5	*ND*		--		--		*ND*		--		--	
Potassium	EPA 200.7	mg/L	1	13		--		--		13		--		--	
Selenium	EPA 200.8	ug/L	5	*ND*		--		--		*ND*		--		--	
Silica	EPA 200.7	mg/L	0.5	38		--		--		37		--		--	
Silver	EPA 200.8	ug/L	0.5	0.57		--		--		0.72		--		--	
Sodium	EPA 200.7	mg/L	1	47		--		--		47		--		--	
Thallium	EPA 200.8	ug/L	1	*ND*		--		--		*ND*		--		--	
Zinc	EPA 200.8	ug/L	20	120	J+	--		--		120		--		--	
RESIDUAL CHEMICALS															
N-Nitroso dimethylamine (NDMA)	EPA 521	ng/L	2	5.1		--		4.5		*ND*	*UJ*	--		*ND*	
1,4-Dioxane	EPA 522	ug/L	0.07	0.36		--		0.43		0.36		--		0.39	
1,7-Dimethylxanthine	LC-MS-MS	ng/L	10	*ND*		--		*ND*		830		*ND*		*ND*	
2,4-D (Method LC-MS-MS)	LC-MS-MS	ng/L	5	*ND*		--		*ND*		*ND*		*ND*		*ND*	
4-n-Octylphenol diethoxylate	LC-MS-MS-WW	ng/L	100	120		--		*ND*		*ND*		--		*ND*	
4-n-Octylphenol monoethoxylate	LC-MS-MS-WW	ng/L	100	*ND*		--		*ND*		*ND*		--		*ND*	
4-nonylphenol - semi quantitative	LC-MS-MS	ng/L	100	3200	J	--		1100	J	790	J	1700	J	*ND*	*UJ*
4-para-Nonylphenol	LC-MS-MS-WW	ng/L	100	1200		--		240		--		--		--	
4-tert-octylphenol	LC-MS-MS	ng/L	50	*ND*		--		*ND*		110		84		*ND*	
Acesulfame-K	LC-MS-MS	ng/L	20	20000		--		1300		60000		13000		13000	
Acetaminophen	LC-MS-MS	ng/L	5	42000		--		*ND*		210000		*ND*		*ND*	
Albuterol	LC-MS-MS	ng/L	5	10		--		5.8		26		14		*ND*	
Amoxicillin (semi-quantitative)	LC-MS-MS	ng/L	20	21000	J	--		*ND*	*UJ*	64000	J	22000	J	*ND*	*UJ*
Androstenedione	LC-MS-MS	ng/L	5	*ND*		--		*ND*		270		*ND*		*ND*	
Atenolol	LC-MS-MS	ng/L	5	650		--		180		2800		180		230	
Atrazine (Method LC-MS-MS)	LC-MS-MS	ng/L	5	*ND*		--		*ND*		*ND*		*ND*		*ND*	
Azithromycin	LC-MS-MS	ng/L	20	--		--		--		--		--		--	
Bendroflumethiazide	LC-MS-MS	ng/L	5	*ND*		--		*ND*		*ND*		*ND*		*ND*	
Bezafibrate	LC-MS-MS	ng/L	5	*ND*		--		*ND*		*ND*		*ND*		*ND*	
Bisphenol A	LC-MS-MS-WW	ng/L	100	--		--		--		--		--		--	
BPA (Bisphenol A, low detection limit)	LC-MS-MS	ng/L	10	*ND*		--		*ND*		120		*ND*		*ND*	
Bromacil (Method LC-MS-MS)	LC-MS-MS	ng/L	5	14		--		*ND*		*ND*		*ND*		*ND*	
Butalbital	LC-MS-MS	ng/L	5	5.5		--		*ND*		*ND*		*ND*		*ND*	
Butylparben	LC-MS-MS	ng/L	5	6.5		--		*ND*		69		*ND*		*ND*	
Caffeine	LC-MS-MS	ng/L	5	53000		--		*ND*		280000		12		*ND*	
Carbadox	LC-MS-MS	ng/L	5	40		--		*ND*		*ND*		*ND*		*ND*	
Carbamazepine	LC-MS-MS	ng/L	5	230		--		220		370		270		280	
Carisoprodol	LC-MS-MS	ng/L	5	5		--		8.3		13		18		21	
Chloridazon	LC-MS-MS	ng/L	5	*ND*		--		*ND*		*ND*		*ND*		*ND*	
Chloramphenicol	LC-MS-MS	ng/L	10	*ND*		--		*ND*		*ND*		*ND*		24	
Chlorotoluron	LC-MS-MS	ng/L	5	*ND*		--		*ND*		*ND*		*ND*		*ND*	
Cimetidine	LC-MS-MS	ng/L	5	250	J	--		*ND*	*UJ*	160	J	40	J	*ND*	*UJ*
Clofibric Acid	LC-MS-MS	ng/L	5	*ND*		--		*ND*		*ND*		*ND*		*ND*	
Cotinine	LC-MS-MS	ng/L	10	1400		--		17		3800		21		21	
Cyanazine	LC-MS-MS	ng/L	5	*ND*		--		*ND*		*ND*		*ND*		*ND*	
DACT	LC-MS-MS	ng/L	5	*ND*		--		*ND*		*ND*		*ND*		*ND*	
DEA	LC-MS-MS	ng/L	5	*ND*		--		*ND*		*ND*		*ND*		*ND*	
DEET	LC-MS-MS	ng/L	10	120		--		*ND*		130		41		52	
Dehydronifedipine	LC-MS-MS	ng/L	5	*ND*		--		*ND*		*ND*		*ND*		*ND*	
DIA	LC-MS-MS	ng/L	5	*ND*		--		*ND*		*ND*		*ND*		*ND*	
Diazepam	LC-MS-MS	ng/L	5	*ND*		--		*ND*		*ND*		*ND*		*ND*	
Diclofenac	LC-MS-MS	ng/L	5	*ND*		--		*ND*		48		*ND*		*ND*	
Diuron	LC-MS-MS	ng/L	5	11		--		16		*ND*		*ND*		*ND*	
Dilantin	LC-MS-MS	ng/L	20	150		--		80		94		59		85	
Diltiazem	LC-MS-MS	ng/L	5	62		--		23		68		23		*ND*	
Erythromycin	LC-MS-MS	ng/L	10	230		--		25		44		24		*ND*	
Estradiol - 17 beta	LC-MS-MS	ng/L	5	*ND*		--		*ND*		*ND*		*ND*		*ND*	
Estradiol - 17 beta (low detection)	LC-MS-MS-WW	ng/L	0.5	0.69		--		*ND*		13		--		*ND*	
Estrone	LC-MS-MS	ng/L	0.5	23		--		*ND*		29		*ND*		*ND*	
Estrone (low detection)	LC-MS-MS-WW	ng/L	0.5	2.7		--		0.91		33		--		*ND*	
Ethinyl Estradiol - 17 alpha	LC-MS-MS	ng/L	5	*ND*		--		*ND*		*ND*		*ND*		*ND*	
Ethinyl Estradiol - 17 alpha (low detection)	LC-MS-MS-WW	ng/L	0.5	*ND*		--		*ND*		0.53		--		*ND*	
Ethylparaben	LC-MS-MS	ng/L	20	27		--		*ND*		330		*ND*		*ND*	
Flumeqine	LC-MS-MS	ng/L	10	240		--		*ND*		*ND*		*ND*		*ND*	

				Budd Inlet Reclaimed Water Plant (BIRWP)											
				Sampling Event 1 (11/13/2014)						Sampling Event 2 (02/18/2015)					
				BIRWP-WASTEWATER		BIRWP-SECONDARY		BIRWP-RECLAIMED		BIRWP-WASTEWATER		BIRWP-SECONDARY		BIRWP - RECLAIMED	
ANALYTE	METHOD	UNIT	MRL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Fluoxetine	LC-MS-MS	ng/L	10	400		--		62		170		43		54	
Gemfibrozil	LC-MS-MS	ng/L	5	800		--		710		2100		620		40	
Ibuprofen	LC-MS-MS	ng/L	10	980		--		ND		9400		ND		ND	
Iohexal	LC-MS-MS	ng/L	10	8400		--		5000		16000		12000		12000	
Iopromide	LC-MS-MS	ng/L	5	14		--		15		14		40		43	
Isobutylparaben	LC-MS-MS	ng/L	5	ND		--		ND		66		ND		ND	
Isoproturon	LC-MS-MS	ng/L	100	ND		--		ND		ND		ND		ND	
Ketoprofen	LC-MS-MS	ng/L	5	ND		--		ND		ND		ND		ND	
Ketorolac	LC-MS-MS	ng/L	5	120		--		18		ND		ND		ND	
Lidocaine	LC-MS-MS	ng/L	5	79		--		120		270		370		ND	
Lincomycin	LC-MS-MS	ng/L	10	ND		--		ND		ND		ND		ND	
Linuron	LC-MS-MS	ng/L	5	ND		--		ND		ND		ND		ND	
Lopressor	LC-MS-MS	ng/L	20	290		--		150		ND		230		220	
Meclofenamic Acid	LC-MS-MS	ng/L	5	69		--		ND		ND		ND		ND	
Meprobamate	LC-MS-MS	ng/L	5	73		--		26		38		40		52	
Metazachlor	LC-MS-MS	ng/L	5	ND	R	--		ND	R	ND	R	ND	R	ND	R
Metformin	LC-MS-MS	ng/L	10	19000		--		150		3500		--		31	
Methylparaben	LC-MS-MS	ng/L	20	ND		--		ND		670		ND		ND	
Naproxen	LC-MS-MS	ng/L	10	48		--		13		510		ND		ND	
Nifedipine	LC-MS-MS	ng/L	20	33	J	--		ND	UJ	38	J	ND	UJ	ND	UJ
Nonylphenol Diethoxylate	LC-MS-MS-WW	ng/L	100	310		--		ND		200		--		ND	
Nonylphenol Monoethoxylate	LC-MS-MS-WW	ng/L	100	ND		--		ND		ND		--		ND	
Norethisterone	LC-MS-MS	ng/L	5	ND		--		ND		ND		ND		ND	
Octylphenol	LC-MS-MS-WW	ng/L	100	ND		--		ND		--		--		--	
Oxolinic acid	LC-MS-MS	ng/L	10	130		--		ND		ND		ND		ND	
Pentoxifylline	LC-MS-MS	ng/L	5	ND		--		ND		24		6.2		9.2	
Phenazone	LC-MS-MS	ng/L	5	ND		--		ND		ND		ND		ND	
Primidone	LC-MS-MS	ng/L	5	300		--		180		200		120		130	
Progesterone	LC-MS-MS	ng/L	5	5		--		ND		130		ND		ND	
Propazine	LC-MS-MS	ng/L	5	ND		--		ND		ND		ND		ND	
Propylparaben	LC-MS-MS	ng/L	5	500		--		ND		1500		ND		ND	
Quinoline	LC-MS-MS	ng/L	5	18		--		ND		140		ND		ND	
Simazine (Method LC-MS-MS)	LC-MS-MS	ng/L	5	8.8		--		5.2		ND		ND		ND	
Sucralose	LC-MS-MS	ng/L	100	63000		--		18000		64000		16000		26000	
Sulfachloropyridazine	LC-MS-MS	ng/L	5	ND		--		ND		ND		ND		ND	
Sulfadiazine	LC-MS-MS	ng/L	5	5.8		--		ND		ND		ND		ND	
Sulfadimethoxine	LC-MS-MS	ng/L	5	ND		--		ND		ND		ND		ND	
Sulfamerazine	LC-MS-MS	ng/L	5	ND		--		ND		ND		ND		ND	
Sulfamethazine	LC-MS-MS	ng/L	5	7		--		ND		ND		ND		ND	
Sulfamethizole	LC-MS-MS	ng/L	5	6.2		--		ND		ND		ND		ND	
Sulfamethoxazole	LC-MS-MS	ng/L	5	3000		--		240		1000		390		ND	
Sulfathiazole	LC-MS-MS	ng/L	5	ND		--		ND		ND		ND		ND	
TCEP	LC-MS-MS	ng/L	10	33		--		53		33		110		120	
TCPP	LC-MS-MS	ng/L	100	460		--		580		710		630		740	
TDCPP	LC-MS-MS	ng/L	100	160		--		220		130		220		220	
Theobromine	LC-MS-MS	ng/L	10	12000		--		13		32000		110		ND	
Thiabendazole	LC-MS-MS	ng/L	5	72		--		15		ND		ND		ND	
Testosterone	LC-MS-MS	ng/L	5	17		--		ND		ND		ND		6.6	
Triclocarban	LC-MS-MS	ng/L	5	ND		--		ND		120		ND		ND	
Triclosan	LC-MS-MS	ng/L	10	420		--		19		920		73		ND	
Trimethoprim	LC-MS-MS	ng/L	5	260		--		97		410		230		ND	
Warfarin	LC-MS-MS	ng/L	5	ND		--		ND		14		ND		ND	
PFCs															
Perfluoro butanoic acid- PFBA	MWH PFC	ng/L	10	ND		--		ND		25		--		ND	
Perfluoro octanesulfonate-PFOS	MWH PFC	ng/L	5	ND		--		ND		ND		--		ND	
Perfluoro octanesulfonic acid - PFOS	MWH PFC	ng/L	5	ND		--		ND		ND		--		ND	
Perfluoro octanoic acid - PFOA	MWH PFC	ng/L	5	ND		--		7.4	J	ND		--		5.6	
Perfluoro-1-butanesulfonate	MWH PFC	ng/L	5	ND		--		ND		ND		--		ND	
Perfluoro-1-butanesulfonic acid	MWH PFC	ng/L	5	ND		--		ND		ND		--		ND	
Perfluoro-1-hexanesulfonate	MWH PFC	ng/L	5	ND		--		ND		ND		--		ND	
Perfluoro-1-hexanesulfonic acid	MWH PFC	ng/L	5	ND		--		ND		ND		--		ND	
Perfluoro-n-decanoic acid	MWH PFC	ng/L	5	ND		--		ND		ND		--		ND	
Perfluoro-n-heptanoic acid	MWH PFC	ng/L	5	ND		--		ND		ND		--		ND	
Perfluoro-n-hexanoic acid	MWH PFC	ng/L	5	ND		--		17		ND		--		8.8	
Perfluoro-n-nonanoic acid	MWH PFC	ng/L	5	ND		--		ND		ND		--		ND	
Perfluoropentanoic acid	MWH PFC	ng/L	5	26		--		10		--		--		--	
PBDEs/EDB/DBCP															
BDE-100	GC-QQQ PBDE	ng/L	5	ND	UJ	--		ND	UJ	--		--		--	
BDE-153	GC-QQQ PBDE	ng/L	5	ND	UJ	--		ND	UJ	--		--		--	
BDE-154	GC-QQQ PBDE	ng/L	5	ND	UJ	--		ND	UJ	--		--		--	
BDE-183	GC-QQQ PBDE	ng/L	5	ND	UJ	--		ND		--		--		--	
BDE-209	GC-QQQ PBDE	ng/L	100	ND	UJ	--		ND	UJ	--		--		--	
BDE-28	GC-QQQ PBDE	ng/L	5	ND	UJ	--		ND		--		--		--	
BDE-47	GC-QQQ PBDE	ng/L	5	ND	UJ	--		ND		--		--		--	
BDE-99	GC-QQQ PBDE	ng/L	5	ND	UJ	--		ND		--		--		--	
Bifenthrin	GC-QQQ PBDE	ng/L	5	ND	UJ	--		ND		--		--		--	
cis-Permethrin	GC-QQQ PBDE	ng/L	5	8.7	J-	--		ND		--		--		--	
Fipronil	GC-QQQ PBDE	ng/L	2	4.1	J-	--		46		--		--		--	
Total Permethrin	GC-QQQ PBDE	ng/L	10	24	J-	--		ND		--		--		--	
trans-Permethrin	GC-QQQ PBDE	ng/L	5	13	J-	--		ND		--		--		--	
Dibromochloropropane (DBCP)	EPA 551.1	ug/L	0.01	ND		--		ND		ND		--		ND	
Ethylene Dibromide (EDB)	EPA 551.1	ug/L	0.01	ND		--		ND		ND		--		ND	
DBPs															
Chloroform (Trichloromethane)	EPA 524.2	ug/L	0.5	ND		ND		8.2		0.78	J	--		16	
Bromoform	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		--		ND	
Bromodichloromethane	EPA 524.2	ug/L	0.5	ND		ND		7		ND		--		7	
Chlorodibromomethane	EPA 524.2	ug/L	0.5	ND		ND		1.1		ND		--		1.7	
Total Trihalomethanes (TTHM)	EPA 524.2	ug/L	0.5	ND		ND		13		0.78		--		25	
Bromochloroacetic acid	SM 6251B	ug/L	1	ND		--		3.5		ND		--		4.4	
Dibromoacetic acid	SM 6251B	ug/L	1	ND		--		ND		ND		--		ND	
Dichloroacetic acid	SM 6251B	ug/L	1	ND		--		14		3.4		--		16	
Monobromoacetic acid	SM 6251B	ug/L	1	ND		--		ND		ND		--		ND	
Monochloroacetic acid	SM 6251B	ug/L	2	ND		--		ND		ND		--		ND	
Total Haloacetic Acids (HAA5)	SM 6251B	ug/L	2	2.1		--		26		5.4		--		43	
Trichloroacetic acid	SM 6251B	ug/L	1	2.1		--		12		2		--		27	
PCBs															
PCB 1016 Aroclor	EPA 505	ug/L	0.08	ND	UJ	--		ND		--		--		--	
PCB 1221 Aroclor	EPA 505	ug/L	0.1	ND	UJ	--		ND		--		--		--	
PCB 1232 Aroclor	EPA 505	ug/L	0.1	ND	UJ	--		ND		--		--		--	
PCB 1242 Aroclor	EPA 505	ug/L	0.1	ND	UJ	--		ND		--		--		--	
PCB 1248 Aroclor	EPA 505	ug/L	0.1	ND	UJ	--		ND		--		--		--	
PCB 1254 Aroclor	EPA 505	ug/L	0.1	ND	UJ	--		ND		--		--		--	
PCB 1260 Aroclor	EPA 505	ug/L	0.1	ND	UJ	--		ND		--		--		--	
Total PCBs	EPA 505	ug/L	0.1	ND	UJ	--		ND		--		--		--	
PESTICIDES AND HERBICIDES															
Alachlor (Alanex)	EPA 505	ug/L	0.1	ND	UJ	--		ND		--		--		--	
Aldrin (EPA Method 505)	EPA 505	ug/L	0.01	ND	UJ	--		ND		--		--		--	
Chlordane	EPA 505	ug/L	0.1	ND	UJ	--		ND		--		--		--	
Dieldrin (EPA Method 505)	EPA 505	ug/L	0.01	ND	UJ	--		ND		--		--		--	
Endrin (EPA Method 505)	EPA 505	ug/L	0.01	ND	UJ	--		ND		--		--		--	
Heptachlor (EPA Method 505)	EPA 505	ug/L	0.01	0.01	J-	--		ND		--		--		--	
Heptachlor Epoxide	EPA 505	ug/L	0.01	ND	UJ	--		ND		--		--		--	
Lindane (gamma-BHC)	EPA 505	ug/L	0.01	ND	UJ	--		ND		--		--		--	
Methoxychlor (EPA Method 505)	EPA 505	ug/L	0.05	ND	UJ	--		ND		--		--		--	
Toxaphene	EPA 505	ug/L	0.5	ND	UJ	--		ND		--		--		--	
2,4,5-T	EPA 515.4	ug/L	0.2	ND		--		ND		--		--		--	
2,4,5-TP (Silvex)	EPA 515.4	ug/L	0.2	ND		--		ND		--		--		--	
2,4-D (EPA Method 515.4)	EPA 515.4	ug/L	5	ND		--		ND		--		--		--	
2,4-DB	EPA 515.4	ug/L	2	ND		--		ND		--		--		--	
3,5-Dichlorobenzoic acid	EPA 515.4	ug/L	0.5	ND		--		ND		--		--		--	
Acifluorfen	EPA 515.4	ug/L	0.2	ND		--		ND		--		--		--	
Bentazon	EPA 515.4	ug/L	0.5	ND		--		ND		--		--		--	
Dicamba	EPA 515.4	ug/L	0.1	ND		--		ND		--		--		--	
Dalapon	EPA 515.4	ug/L	1	ND		--		ND		--		--		--	
Dichlorprop	EPA 515.4	ug/L	0.5	ND		--		ND		--		--		--	
Dinoseb	EPA 515.4	ug/L	0.2	ND		--		ND		--		--		--	
Pentachlorophenol (EPA Method 515.4)	EPA 515.4	ug/L	0.04	0.046		--		ND		--		--		--	
Picloram	EPA 515.4	ug/L	0.1	ND		--		ND		--		--		--	
Tot DCPA Mono&Diacid Degradate	EPA 515.4	ug/L	0.1	ND		--		ND		--		--		--	
VOCs															
1,1,1,2-Tetrachloroethane	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
1,1,1-Trichloroethane	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
1,1,2,2-Tetrachloroethane	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
1,1,2-Trichloroethane	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
1,1-Dichloroethane	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
1,1-Dichloroethylene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
1,1-Dichloropropene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
1,2,3-Trichlorobenzene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
1,2,3-Trichloropropane	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
1,2,4-Trichlorobenzene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
1,2,4-Trimethylbenzene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
1,2-Dichloroethane	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
1,2-Dichloropropane	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
1,3,5-Trimethylbenzene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
1,3-Dichloropropane	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
2,2-Dichloropropane	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
2-Butanone (MEK)	EPA 524.2	ug/L	5	ND		--		ND		ND		--		ND	
2-Hexanone	EPA 524.2	ug/L	10	ND		--		ND		ND		--		ND	
4-Methyl-2-Pentanone (MIBK)	EPA 524.2	ug/L	5	ND		--		ND		ND		--		ND	
Benzene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Bromobenzene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Bromochloromethane	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Bromoethane	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Bromomethane (Methyl Bromide)	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Chlorobenzene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Chloroethane	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Chloromethane(Methyl Chloride)	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Dibromomethane	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Carbon disulfide	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Carbon Tetrachloride	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
cis-1,2-Dichloroethylene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
cis-1,3-Dichloropropene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Dichlorodifluoromethane	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	

				Budd Inlet Reclaimed Water Plant (BIRWP)									
				Sampling Event 1 (11/13/2014)						Sampling Event 2 (02/18/2015)			
				BIRWP-WASTEWATER		BIRWP-SECONDARY		BIRWP-RECLAIMED		BIRWP-WASTEWATER		BIRWP-SECONDARY		BIRWP - RECLAIMED	
ANALYTE	METHOD	UNIT	MRL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Dichloromethane	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Di-isopropyl ether	EPA 524.2	ug/L	3	ND		--		ND		ND		--		ND	
Ethyl benzene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Hexachlorobutadiene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Isopropylbenzene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
m,p-Xylenes	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
m-Dichlorobenzene (1,3-DCB)	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Methyl Tert-butyl ether (MTBE)	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Naphthalene (EPA Method 524.2)	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
n-Butylbenzene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
n-Propylbenzene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
o-Chlorotoluene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
o-Dichlorobenzene (1,2-DCB)	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
o-Xylene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
p-Chlorotoluene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
p-Dichlorobenzene (1,4-DCB)	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
p-Isopropyltoluene	EPA 524.2	ug/L	0.5	ND		--		ND		1.4		--		ND	
sec-Butylbenzene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Styrene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
tert-amyl Methyl Ether	EPA 524.2	ug/L	3	ND		--		ND		ND		--		ND	
tert-Butyl Ethyl Ether	EPA 524.2	ug/L	3	ND		--		ND		ND		--		ND	
tert-Butylbenzene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Tetrachloroethylene (PCE)	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Toluene	EPA 524.2	ug/L	0.5	1.9		--		ND		1.9		--		ND	
Total 1,3-Dichloropropene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Total xylenes	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
trans-1,2-Dichloroethylene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
trans-1,3-Dichloropropene	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Trichloroethylene (TCE)	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Trichlorofluoromethane	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Trichlorotrifluoroethane (Freon 113)	EPA 524.2	ug/L	0.5	ND		--		ND		ND		--		ND	
Vinyl chloride (VC)	EPA 524.2	ug/L	0.3	ND		--		ND		ND		--		ND	
SVOCS															
2,4-Dinitrotoluene	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
2,6-Dinitrotoluene	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
4,4-DDD	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
4,4-DDE	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
4,4-DDT	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Acenaphthene	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Acenaphthylene	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Acetochlor	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Alachlor	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Aldrin (EPA Method 525.2)	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Alpha-BHC	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
alpha-Chlordane	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Anthracene	EPA 525.2	ug/L	0.02	ND (<0.04)		--		ND		--		--		--	
Atrazine (EPA Method 525.2)	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Benz(a)Anthracene	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Benzo(a)pyrene	EPA 525.2	ug/L	0.02	ND (<0.04)		--		ND		--		--		--	
Benzo(b)Fluoranthene	EPA 525.2	ug/L	0.02	ND (<0.04)		--		ND		--		--		--	
Benzo(g,h,i)Perylene	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Benzo(k)Fluoranthene	EPA 525.2	ug/L	0.02	ND (<0.04)		--		ND		--		--		--	
Beta-BHC	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Bromacil(EPA Method 525.2)	EPA 525.2	ug/L	0.2	ND (<0.4)		--		ND		--		--		--	
Butachlor	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Butylbenzylphthalate	EPA 525.2	ug/L	0.5	ND (<1)		--		ND		--		--		--	
Chlorobenzilate	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Chloroneb	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Chlorothalonil(Draconil,Bravo)	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Chlorpyrifos (Dursban)	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Chrysene	EPA 525.2	ug/L	0.02	ND (<0.04)		--		ND		--		--		--	
Delta-BHC	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Di-(2-Ethylhexyl)adipate	EPA 525.2	ug/L	0.6	ND (<1.2)		--		ND		--		--		--	
Di(2-Ethylhexyl)phthalate	EPA 525.2	ug/L	0.6	1.7		--		ND		--		--		--	
Diazinon (Qualitative)	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Dibenz(a,h)Anthracene	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Dichlorvos (DDVP)	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Dieldrin (EPA Method 525.2)	EPA 525.2	ug/L	0.01	ND (<0.02)		--		ND		--		--		--	
Diethylphthalate	EPA 525.2	ug/L	0.5	4.4		--		ND		--		--		--	
Dimethoate	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Dimethylphthalate	EPA 525.2	ug/L	0.5	ND (<0.1)		--		ND		--		--		--	
Di-n-Butylphthalate	EPA 525.2	ug/L	1	ND (<2)		--		ND		--		--		--	
Di-N-octylphthalate	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Endosulfan I (Alpha)	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Endosulfan II (Beta)	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Endosulfan Sulfate	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Endrin (EPA Method 525.2)	EPA 525.2	ug/L	0.01	ND (<0.02)		--		ND		--		--		--	
Endrin Aldehyde	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
EPTC	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Fluoranthene	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Fluorene	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
gamma-Chlordane	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Heptachlor (EPA Method 525.2)	EPA 525.2	ug/L	0.01	ND (<0.02)		--		ND		--		--		--	
Heptachlor Epoxide (isomer B)	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Hexachlorobenzene	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Hexachlorocyclopentadiene	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Indeno(1,2,3,c,d)Pyrene	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Isophorone	EPA 525.2	ug/L	0.5	ND (<1)		--		ND		--		--		--	
Lindane	EPA 525.2	ug/L	0.04	ND (<0.08)		--		ND		--		--		--	
Malathion	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Methoxychlor (EPA Method 525.2)	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Metolachlor	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Metribuzin	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Molinate	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Naphthalene (EPA Method 525.2)	EPA 525.2	ug/L	0.5	ND (<0.1)		--		ND		--		--		--	
Parathion	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Pendimethalin	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Pentachlorophenol (EPA Method 525.2)	EPA 525.2	ug/L	0.04	ND (<0.08)		--		ND		--		--		--	
Permethrin (mixed isomers)	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Phenanthrene	EPA 525.2	ug/L	0.04	ND (<0.08)		--		ND		--		--		--	
Propachlor	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Pyrene	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Simazine (EPA Method 525.2)	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Terbacil	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Terbuthylazine	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	
Thiobencarb	EPA 525.2	ug/L	0.2	ND (<0.4)		--		ND		--		--		--	
Total PAH	EPA 525.2	ug/L	0.02	ND (<0.04)		--		ND		--		--		--	
trans-Nonachlor	EPA 525.2	ug/L	0.05	ND (<0.1)		--		ND		--		--		--	
Trifluralin	EPA 525.2	ug/L	0.1	ND (<0.2)		--		ND		--		--		--	

MRL = Minimum Reporting Level; ND = Not Detected above MRL; "---" = Not Analyzed; Qual = Data Qualifier
ND (<#) = Not Detected and MRL is higher than the method MRL due to dilutions
mg/L = milligrams per liter (ppm); µg/L = micrograms per liter (ppb); ng/L = nanograms per liter (ppt)
µS/cm = microsiemens per centimeter; mV = millivolts
MPN/100ml = Most Probable Number (colony forming units) per 100 ml; PFU/100ml = Plaque Forming Units per 100 ml
PFC = Perfluorinated Compound; PBDE = Polybrominated Diphenyl Ether
DBP = Disinfection Byproduct; PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound; SVOC = Semivolatile Organic Compound
Notes:
1) Some analytes are listed twice as they were analyzed via multiple methods.
2) Data qualifiers:
J = Value is detected and the result is estimated.
J- = Value is detected and the result is estimated and biased low.
J+ = Value is detected and the result is estimated and biased high.
UJ = Result is a non-detect and the value is estimated.
R = Result rejected.

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				Budd Inlet Reclaimed Water Plant (BIRWP)									
				Sampling Event 3 (05/20/2015)				Sampling Event 4 (08/19/2015)					
				BIRWP-WASTEWATER		BIRWP - RECLAIMED		BIRWP-WASTEWATER		BIRWP-SECONDARY		BIRWP-RECLAIMED	
ANALYTE	METHOD	UNIT	MRL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
FIELD PARAMETERS													
pH		units	N/A	7.33		7.16		7.23		7.01		6.82	
Temperature		˚C	N/A	18.2		19.2		22.8		23.7		23.6	
Specific Conductance		µS/cm	N/A	753		638		729		703		706	
Oxidation Reduction Potential (ORP)		mV	N/A	-25		677		-88.3		282.5		662	
Dissolved Oxygen		mg/L	N/A	2.5		7.0		2.08		6.36		6.75	
Free Cl		mg/L	N/A										
Total Cl		mg/L	N/A										
LABORATORY GENERAL WATER QUALITY PARAMETERS													
Alkalinity	SM 2320B	mg/L	2	240		100		260		110		110	
Alkalinity (as HCO3, calc)	SM2330B	mg/L	2	290		120		320		140		130	
Carbonate	SM2330B	mg/L	2	*ND*		*ND*		*ND*		*ND*		*ND*	
Hydroxide	SM2330B	mg/L	2	*ND*		*ND*		*ND*		*ND*		*ND*	
Carbon Dioxide	SM4500-CO2-D	mg/L	2	30		9.9		*ND*		*ND*		*ND*	
Specific Conductance	SM2510B	umho/cm	2	800		630		820		700		700	
Turbidity	Default	NTU	0	0.99		0.99		0.99		--		--	
WASTEWATER/RECLAIMED WATER PARAMETERS													
Total Suspended Solids	SM 2540D	mg/L	10	460		*ND*		250		*ND*		*ND*	
Total Dissolved Solid	E160.1/SM2540C	mg/L	10	360		390		410		420		420	
Total Organic Carbon	SM5310C/E415.3	mg/L	0.3	140		6.8		160		14	J	9	
Chemical Oxygen Demand	EPA 410.4	mg/L	5	740	J-	14	J-	510		18		11	
Dissolved Organic Carbon - Final	Allgeier, 1996	mg/L	0.3	29		6.4		20		7		6	
Dissolved Organic Carbon - Initial	Allgeier, 1996	mg/L	0.3	63		7.1	J+	56		6.9	J+	6.5	J+
Biochemical Oxygen Demand	SM5210B 405.1	mg/L	3	260		*ND*		270		*ND*		*ND*	
Biodegradable Dissolved Organic Carbon	Allgeier, 1996	mg/L	0.3	34		0.69		36		*ND*		*ND (<0.6)*	
Bromide	EPA 300.0	ug/L	5	140		100		94		310		140	
Chloride	EPA 300.0	mg/L	1	64		100		52		110		120	
Fluoride	SM 4500F-C	mg/L	0.05	0.31		0.24		0.18		0.16		0.15	
Sulfate	EPA 300.0	mg/L	0.5	20		30		22		36		35	
SulfideTotal	SM4500SD/376.2	mg/L	0.05	0.11		*ND*		0.21		*ND*		*ND*	
Sulfur Total ICAP	EPA 200.7	mg/L	0.1	29		--		19		--		--	
Total Hardness as CaCO3 by ICP (calc)	SM 2340B	mg/L	3	100		--		100		--		--	
Total Chlorine	SM 4500-CL G	mg/L	0.1	*ND*		0.8	J-	2.1		0.12		0.74	
Free Chlorine	SM 4500CL-G/HACH	mg/L	0.1	*ND*		*ND*		1.7		*ND*		*ND*	
Chloramines	SM 4500CL-G/HACH	mg/L	0.1	*ND*	*UJ*	0.78	J-	0.4		*ND*		0.66	
Anion Sum - Calculated	SM 1030E	meq/L	0.001	7		5.6		7.2		6.3		6.4	
Cation Sum - Calculated	SM 1030E	meq/L	0.001	4.7		--		4.4		--		--	
Cation Sum - Manual Calculation	SM 1030E	%	0	--		--		--		2		2	
Cation/Anion Difference	SM 1030E	%	0	4.4		--		2.8		--		--	
Cation Balance with NH3		meq/L	0	7.7		--		7.6		--		--	
PATHOGENS													
Total Coliform	SM 9222B	MPN/100 mL	1	>2419600		*ND*		>2419600		310		*ND*	
Fecal Coliform	SM 9222D	MPN/100 mL	1	--		--		--		--		--	
Fecal Coliform	SM 9222D	CFU/mL	1	>2419600	J	*ND*		>200000		9		*ND*	
Cryptosporidium	EPA 1623	oocysts/L	NA	--		--		< 10		--		< 0.100	
Giardia	EPA 1623	Organism/L	NA	--		--		2620		--		< 0.100	
Somatic coliphage titer	FR59#28 1602	P/100mL	1	110000		<1		1600000		1		<1	
Male-specific coliphage titer	FR59#28 1602	P/100mL	1	140000		<1		110000		<1		<1	
NUTRIENTS													
Nitrate (as Nitrogen)	EPA 300.0	mg/L	0.1	*ND (<0.2)*		1.9		*ND (<0.2)*		1.6		1.8	
Nitrite	EPA 300.0	mg/L	0.05	*ND (<0.1)*		*ND (<0.25)*		*ND (<0.1)*		*ND (<0.1)*		*ND (<0.1)*	
Nitrate+Nitrite	EPA 300.0	mg/L	0.1	*ND (<0.2)*		1.9		*ND (<0.2)*		1.6		1.8	
Ammonia Nitrogen	EPA 350.1	mg/L	0.05	41		*ND*		41		*ND*		0.06	
Kjeldahl Nitrogen	EPA 351.2	mg/L	0.2	65		1		82		1.6		1.2	
Total Nitrogen	EPA 353-351	mg/L	0.2	65		2.9		82		3.2		3	
Dissolved Orthophosphate (as P)	4500P-E/365.1	mg/L	0.01	4.6		3.7		4.1		5		4.8	
Dissolved Total Phosphorus	SM4500-PE/EPA 365.1	mg/L	0.4	4.8		3.8		3.7		4.6		4.4	
Orthophosphate (as P)	4500P-E/365.1	mg/L	0.01	4.6		3.7		4		4.9		4.9	
Total Phosphorus	SM4500-PE/EPA 365.1	mg/L	0.02	9.4		3.8		7.4		4.6	J-	4	
METALS (DISSOLVED)													
Aluminum	EPA 200.8	ug/L	20	25		*ND*		*ND*		*ND*		*ND*	
Antimony	EPA 200.8	ug/L	1	*ND*		*ND*		*ND*		*ND*		*ND*	
Arsenic	EPA 200.8	ug/L	1	1		1.3		1.9		2.1		2	
Barium	EPA 200.8	ug/L	2	6.1		4.9		6.8		4.8		4.5	
Beryllium	EPA 200.8	ug/L	1	*ND*		*ND*		*ND*		*ND*		*ND*	
Boron	EPA 200.7	mg/L	0.05	0.17		0.18		0.21		0.2		0.2	
Cadmium	EPA 200.8	ug/L	0.5	*ND*		*ND*		*ND*		*ND*		*ND*	
Calcium	EPA 200.7	mg/L	1	19		22		21		24		25	
Chromium	EPA 200.8	ug/L	1	*ND*		*ND*		*ND*		*ND*		*ND*	
Copper	EPA 200.8	ug/L	2	35		6.1		10		8		9.3	
Iron	EPA 200.7	mg/L	0.02	0.18		0.026		0.13		*ND*		*ND*	
Lead	EPA 200.8	ug/L	0.5	*ND*		*ND*		*ND*		0.62		0.58	
Magnesium	EPA 200.7	mg/L	0.1	8.8		11		9.8		14		13	
Manganese	EPA 200.8	ug/L	2	61		*ND*		430		7.2		*ND*	
Mercury	EPA 245.1	ug/L	0.2	*ND*		*ND*		*ND*		*ND*		*ND*	
Potassium	EPA 200.7	mg/L	1	15		15		16		17		17	
Seleniun	EPA 200.8	ug/L	5	*ND*		*ND*		*ND*		*ND*		*ND*	
Silica	EPA 200.7	mg/L	0.5	39		37		44		43		43	
Silicon	EPA 200.7	mg/L	0.2	18		18		20		20		20	
Silver	EPA 200.8	ug/L	0.5	*ND*		*ND*		*ND*		*ND*		*ND*	
Sodium	EPA 200.7	mg/L	1	51		72		50		85		90	
Thallium	EPA 200.8	ug/L	1	*ND*		*ND*		*ND*		*ND*		*ND*	
Zinc	EPA 200.8	ug/L	20	42		53		68		150		110	
METALS (TOTAL)													
Aluminum	EPA 200.8	ug/L	20	98		--		390		--		--	
Antimony	EPA 200.8	ug/L	1	1.4		--		*ND*		--		--	
Arsenic	EPA 200.8	ug/L	1	*ND*		--		2.9		--		--	
Barium	EPA 200.8	ug/L	2	14		--		40		--		--	
Beryllium	EPA 200.8	ug/L	1	*ND*		--		*ND*		--		--	
Boron	EPA 200.7	mg/L	0.05	0.17		--		0.2		--		--	
Cadmium	EPA 200.8	ug/L	0.5	*ND*		--		*ND*		--		--	
Calcium	EPA 200.7	mg/L	1	25		--		24		--		--	
Chromium	EPA 200.8	ug/L	1	*ND*		--		1.7		--		--	
Copper	EPA 200.8	ug/L	2	62		--		88		--		--	
Iron	EPA 200.7	mg/L	0.02	0.83		--		1.4		--		--	
Lead	EPA 200.8	ug/L	0.5	1.2		--		2.2		--		--	
Magnesium	EPA 200.7	mg/L	0.1	10		--		10		--		--	
Manganese	EPA 200.8	ug/L	2	64		--		920		--		--	
Mercury	EPA 245.1	ug/L	0.2	*ND*		--		*ND*		--		--	
Nickel	EPA 200.8	ug/L	5	*ND*		--		*ND*		--		--	
Potassium	EPA 200.7	mg/L	1	17		--		18		--		--	
Selenium	EPA 200.8	ug/L	5	*ND*		--		*ND*		--		--	
Silica	EPA 200.7	mg/L	0.5	40		--		44		--		--	
Silver	EPA 200.8	ug/L	0.5	*ND*		--		1		--		--	
Sodium	EPA 200.7	mg/L	1	51		--		48		--		--	
Thallium	EPA 200.8	ug/L	1	*ND*		--		*ND*		--		--	
Zinc	EPA 200.8	ug/L	20	60		--		140		--		--	
RESIDUAL CHEMICALS													
N-Nitroso dimethylamine (NDMA)	EPA 521	ng/L	2	*ND*	*UJ*	3		*ND*	*UJ*	--		2.4	
1,4-Dioxane	EPA 522	ug/L	0.07	0.26		0.43		0.29		--		0.45	
1,7-Dimethylxanthine	LC-MS-MS	ng/L	10	560		*ND*	*R*	920		*ND*		*ND*	
2,4-D (Method LC-MS-MS)	LC-MS-MS	ng/L	5	430		*ND*		*ND*		31		*ND*	
4-n-Octylphenol diethoxylate	LC-MS-MS-WW	ng/L	100	*ND*		*ND*		250		--		*ND*	
4-n-Octylphenol monoethoxylate	LC-MS-MS-WW	ng/L	100	*ND*		*ND*		*ND*		--		*ND*	
4-nonylphenol - semi quantitative	LC-MS-MS	ng/L	100	1200	J	110	J	440	J	870	J	240	J
4-para-Nonylphenol	LC-MS-MS-WW	ng/L	100	--		--		--		--		--	
4-tert-octylphenol	LC-MS-MS	ng/L	50	200		*ND*		*ND*		*ND*		*ND*	
Acesulfame-K	LC-MS-MS	ng/L	20	43000		12000	J+	31000		21		23	
Acetaminophen	LC-MS-MS	ng/L	5	82000		*ND*		100000		*ND*		*ND*	
Albuterol	LC-MS-MS	ng/L	5	*ND*		*ND*		46	J	80		*ND*	
Amoxicillin (semi-quantitative)	LC-MS-MS	ng/L	20	17000		*ND*		*ND*		3900		*ND*	
Androstenedione	LC-MS-MS	ng/L	5	170	J	*ND*	*UJ*	*ND*	*UJ*	*ND*	*UJ*	*ND*	*UJ*
Atenolol	LC-MS-MS	ng/L	5	2400		190		1900		270		220	
Atrazine (Method LC-MS-MS)	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*	
Azithromycin	LC-MS-MS	ng/L	20	330	J	*ND*	*UJ*	*ND*	*UJ*	65	J+	*ND*	*UJ*
Bendroflumethiazide	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*	
Bezafibrate	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*	
Bisphenol A	LC-MS-MS-WW	ng/L	100	*ND*		*ND*		--		--		--	
BPA (Bisphenol A, low detection limit)	LC-MS-MS	ng/L	10	150		*ND*		*ND*		*ND*		*ND*	
Bromacil (Method LC-MS-MS)	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*	
Butalbital	LC-MS-MS	ng/L	5	18		*ND*		6.1		6.8		5.9	
Butylparben	LC-MS-MS	ng/L	5	83		*ND*		*ND*		*ND*		*ND*	
Caffeine	LC-MS-MS	ng/L	5	82000		*ND*		97000		*ND*		76	
Carbadox	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*	
Carbamazepine	LC-MS-MS	ng/L	5	820		260		490		410		330	
Carisoprodol	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*	
Chloridazon	LC-MS-MS	ng/L	5	*ND*		*ND*	*UJ*	*ND*		*ND*		*ND*	
Chloramphenicol	LC-MS-MS	ng/L	10	*ND*		*ND*		*ND*		*ND*		*ND*	
Chlorotoluron	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*	
Cimetidine	LC-MS-MS	ng/L	5	490	J	*ND*	*UJ*	*ND*	*UJ*	16	J	*ND*	*UJ*
Clofibric Acid	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*	
Cotinine	LC-MS-MS	ng/L	10	4400		38	J	2400		*ND*		130	
Cyanazine	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*	
DACT	LC-MS-MS	ng/L	5	*ND*		5	J-	*ND*		*ND*		*ND*	
DEA	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*	
DEET	LC-MS-MS	ng/L	10	300		27		1100		22		18	
Dehydronifedipine	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		7.5	
DIA	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*	
Diazepam	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*	
Diclofenac	LC-MS-MS	ng/L	5	150		*ND*		*ND*		50		*ND*	
Diuron	LC-MS-MS	ng/L	5	*ND*		*ND*	*UJ*	*ND*		*ND*		*ND*	
Dilantin	LC-MS-MS	ng/L	20	220		*ND*		*ND*		*ND*		*ND*	
Diltiazem	LC-MS-MS	ng/L	5	92		*ND*		29		42		*ND*	
Erythromycin	LC-MS-MS	ng/L	10	84		*ND*		*ND*		*ND*		*ND*	
Estradiol - 17 beta	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*	
Estradiol - 17 beta (low detection)	LC-MS-MS-WW	ng/L	0.5	3.3		*ND*		*ND*		--		*ND*	
Estrone	LC-MS-MS	ng/L	0.5	49		*ND*		*ND*		*ND*		*ND*	
Estrone (low detection)	LC-MS-MS-WW	ng/L	0.5	*ND*		*ND*		*ND*		--		*ND*	
Ethinyl Estradiol - 17 alpha	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*	
Ethinyl Estradiol - 17 alpha (low detection)	LC-MS-MS-WW	ng/L	0.5	*ND*		*ND*		39		--		38	
Ethylparaben	LC-MS-MS	ng/L	20	540		*ND*		*ND*		*ND*		*ND*	
Flumeqine	LC-MS-MS	ng/L	10	*ND*		*ND*		*ND*		*ND*		*ND*	

				Budget Inlet Reclaimed Water Plant (BIRWP)									
				Sampling Event 3 (05/20/2015)				Sampling Event 4 (08/19/2015)					
				BIRWP-WASTEWATER		BIRWP - RECLAIMED		BIRWP-WASTEWATER		BIRWP-SECONDARY		BIRWP-RECLAIMED	
ANALYTE	METHOD	UNIT	MRL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Fluoxetine	LC-MS-MS	ng/L	10	58		31	J-	38		56		45	
Gemfibrozil	LC-MS-MS	ng/L	5	3900		14		1900		140		12	
Ibuprofen	LC-MS-MS	ng/L	10	ND		ND		8900		ND		ND	
Iohexal	LC-MS-MS	ng/L	10	33000		14000		10000		10000		10000	
Iopromide	LC-MS-MS	ng/L	5	380		62		24		92		80	
Isobutylparaben	LC-MS-MS	ng/L	5	80		ND		ND		ND		ND	
Isoproturon	LC-MS-MS	ng/L	100	ND		ND		ND		ND		ND	
Ketoprofen	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND	
Ketorolac	LC-MS-MS	ng/L	5	ND		ND		160		ND		ND	
Lidocaine	LC-MS-MS	ng/L	5	690		ND	UJ	ND		240		ND	
Lincomycin	LC-MS-MS	ng/L	10	ND		ND		ND		ND		ND	
Linuron	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND	
Lopressor	LC-MS-MS	ng/L	20	840		170	J-	260		690		210	
Meclofenamic Acid	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND	
Meprobamate	LC-MS-MS	ng/L	5	ND		22	J-	ND		ND		41	
Metazachlor	LC-MS-MS	ng/L	5	ND	R	ND	R	ND	R	ND	R	ND	R
Metformin	LC-MS-MS	ng/L	10	84000		790		480000		--		1500	
Methylparaben	LC-MS-MS	ng/L	20	48		ND		ND		ND		ND	
Naproxen	LC-MS-MS	ng/L	10	100		ND		9500		ND		ND	
Nifedipine	LC-MS-MS	ng/L	20	ND	UJ	ND	UJ	ND	UJ	ND	UJ	ND	UJ
Nonylphenol Diethoxylate	LC-MS-MS-WW	ng/L	100	ND		ND		880		--		ND	
Nonylphenol Monoethoxylate	LC-MS-MS-WW	ng/L	100	ND		ND		ND		--		ND	
Norethisterone	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND	
Octylphenol	LC-MS-MS-WW	ng/L	100	--		--		--		--		--	
Oxolinic acid	LC-MS-MS	ng/L	10	ND		ND		ND		ND		ND	
Pentoxifylline	LC-MS-MS	ng/L	5	ND		9.9	J-	ND		ND		ND	
Phenazone	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND	
Primidone	LC-MS-MS	ng/L	5	220		150		360		230		200	
Progesterone	LC-MS-MS	ng/L	5	51		ND		ND		ND		ND	
Propazine	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND	
Propylparaben	LC-MS-MS	ng/L	5	1200		ND		ND		ND		ND	
Quinoline	LC-MS-MS	ng/L	5	330		20		130		ND		13	
Simazine (Method LC-MS-MS)	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND	
Sucralose	LC-MS-MS	ng/L	100	77000		43000	J+	62000		44000		50000	
Sulfachloropyridazine	LC-MS-MS	ng/L	5	ND		ND	UJ	ND		ND		ND	
Sulfadiazine	LC-MS-MS	ng/L	5	ND		ND	R	ND		ND		ND	
Sulfadimethoxine	LC-MS-MS	ng/L	5	ND		ND		35		ND		ND	
Sulfamerazine	LC-MS-MS	ng/L	5	ND		ND	UJ	ND		ND		ND	
Sulfamethazine	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND	
Sulfamethizole	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND	
Sulfamethoxazole	LC-MS-MS	ng/L	5	240		ND		2900		810		90	
Sulfathiazole	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND	
TCEP	LC-MS-MS	ng/L	10	90		110		200		280		200	
TCPP	LC-MS-MS	ng/L	100	730		500		630		730		610	
TDCPP	LC-MS-MS	ng/L	100	ND		310		180		340		210	
Theobromine	LC-MS-MS	ng/L	10	19000		ND		20000		ND		57	
Thiabendazole	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND	
Testosterone	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND	
Triclocarban	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND	
Triclosan	LC-MS-MS	ng/L	10	540		ND		70		39		ND	
Trimethoprim	LC-MS-MS	ng/L	5	470		ND		ND		450		ND	
Warfarin	LC-MS-MS	ng/L	5	ND		ND		15		8.8		ND	
PFCs													
Perfluoro butanoic acid- PFBA	MWH PFC	ng/L	10	ND		ND		ND		--		ND	
Perfluoro octanesulfonate-PFOS	MWH PFC	ng/L	5	ND		ND		ND		--		ND	
Perfluoro octanesulfonic acid - PFOS	MWH PFC	ng/L	5	ND		ND		ND		--		ND	
Perfluoro octanoic acid - PFOA	MWH PFC	ng/L	5	ND		ND		ND		--		ND	
Perfluoro-1-butanesulfonate	MWH PFC	ng/L	5	ND		ND		ND		--		ND	
Perfluoro-1-butanesulfonic acid	MWH PFC	ng/L	5	ND		ND		ND		--		ND	
Perfluoro-1-hexanesulfonate	MWH PFC	ng/L	5	ND		ND		ND		--		ND	
Perfluoro-1-hexanesulfonic acid	MWH PFC	ng/L	5	ND		ND		ND		--		ND	
Perfluoro-n-decanoic acid	MWH PFC	ng/L	5	ND		ND		ND		--		ND	
Perfluoro-n-heptanoic acid	MWH PFC	ng/L	5	ND		ND		ND		--		ND	
Perfluoro-n-hexanoic acid	MWH PFC	ng/L	5	ND		ND		ND		--		ND	
Perfluoro-n-nonanoic acid	MWH PFC	ng/L	5	ND		ND		ND		--		ND	
Perfluoropentanoic acid	MWH PFC	ng/L	5	ND		ND		ND		--		ND	
PBDEs/EDB/DBCP													
BDE-100	GC-QQQ PBDE	ng/L	5	ND	UJ	ND		ND	UJ	--		ND	
BDE-153	GC-QQQ PBDE	ng/L	5	ND	UJ	ND		ND	UJ	--		ND	
BDE-154	GC-QQQ PBDE	ng/L	5	ND	UJ	ND		ND	UJ	--		ND	
BDE-183	GC-QQQ PBDE	ng/L	5	ND	UJ	ND		ND	UJ	--		ND	
BDE-209	GC-QQQ PBDE	ng/L	100	ND	UJ	ND	UJ	ND	UJ	--		ND	
BDE-28	GC-QQQ PBDE	ng/L	5	ND	UJ	ND	UJ	ND	UJ	--		ND	
BDE-47	GC-QQQ PBDE	ng/L	5	ND	UJ	ND	UJ	9.9	J-	--		ND	
BDE-99	GC-QQQ PBDE	ng/L	5	ND	UJ	ND		8.4	J-	--		ND	
Bifenthrin	GC-QQQ PBDE	ng/L	5	ND	UJ	ND	UJ	ND	UJ	--		ND	
cis-Permethrin	GC-QQQ PBDE	ng/L	5	14	J-	ND		ND	UJ	--		ND	
Fipronil	GC-QQQ PBDE	ng/L	2	ND	UJ	ND	UJ	5.1	J-	--		ND	
Total Permethrin	GC-QQQ PBDE	ng/L	10	33	J-	ND		ND	UJ	--		ND	
trans-Permethrin	GC-QQQ PBDE	ng/L	5	19	J-	ND		ND	UJ	--		ND	
Dibromochloropropane (DBCP)	EPA 551.1	ug/L	0.01	ND		ND		ND		--		ND	
Ethylene Dibromide (EDB)	EPA 551.1	ug/L	0.01	ND		ND		ND		--		ND	
DBPs													
Chloroform (Trichloromethane)	EPA 524.2	ug/L	0.5	1.7		20		4.4		ND		29	
Bromoform	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		1.4	
Bromodichloromethane	EPA 524.2	ug/L	0.5	ND		14		0.62		ND		26	
Chlorodibromomethane	EPA 524.2	ug/L	0.5	ND		5.1		ND		ND		12	
Total Trihalomethanes (TTHM)	EPA 524.2	ug/L	0.5	1.7		39		5		ND		68	
Bromochloroacetic acid	SM 6251B	ug/L	1	ND		9.2		ND		--		10	
Dibromoacetic acid	SM 6251B	ug/L	1	ND		1.5		ND		--		2.6	
Dichloroacetic acid	SM 6251B	ug/L	1	4.2		20		1.7		--		18	
Monobromoacetic acid	SM 6251B	ug/L	1	ND		ND		ND		--		ND	
Monochloroacetic acid	SM 6251B	ug/L	2	ND		ND		ND		--		2.9	
Total Haloacetic Acids (HAA5)	SM 6251B	ug/L	2	8.9		62		4.8		--		56	
Trichloroacetic acid	SM 6251B	ug/L	1	4.7		40		3.1		--		32	
PCBs													
PCB 1016 Aroclor	EPA 505	ug/L	0.08	--		--		ND	UJ	--		ND	
PCB 1221 Aroclor	EPA 505	ug/L	0.1	--		--		ND	UJ	--		ND	
PCB 1232 Aroclor	EPA 505	ug/L	0.1	--		--		ND	UJ	--		ND	
PCB 1242 Aroclor	EPA 505	ug/L	0.1	--		--		ND	UJ	--		ND	
PCB 1248 Aroclor	EPA 505	ug/L	0.1	--		--		ND	UJ	--		ND	
PCB 1254 Aroclor	EPA 505	ug/L	0.1	--		--		ND	UJ	--		ND	
PCB 1260 Aroclor	EPA 505	ug/L	0.1	--		--		ND	UJ	--		ND	
Total PCBs	EPA 505	ug/L	0.1	--		--		ND	UJ	--		ND	
PESTICIDES AND HERBICIDES													
Alachlor (Alanex)	EPA 505	ug/L	0.1	--		--		ND	UJ	--		ND	
Aldrin (EPA Method 505)	EPA 505	ug/L	0.01	--		--		ND	UJ	--		ND	
Chlordane	EPA 505	ug/L	0.1	--		--		ND	UJ	--		ND	
Dieldrin (EPA Method 505)	EPA 505	ug/L	0.01	--		--		ND	UJ	--		ND	
Endrin (EPA Method 505)	EPA 505	ug/L	0.01	--		--		ND	UJ	--		ND	
Heptachlor (EPA Method 505)	EPA 505	ug/L	0.01	--		--		ND	UJ	--		ND	
Heptachlor Epoxide	EPA 505	ug/L	0.01	--		--		ND	UJ	--		ND	
Lindane (gamma-BHC)	EPA 505	ug/L	0.01	--		--		ND	UJ	--		ND	
Methoxychlor (EPA Method 505)	EPA 505	ug/L	0.05	--		--		ND	UJ	--		ND	
Toxaphene	EPA 505	ug/L	0.5	--		--		ND	UJ	--		ND	
2,4,5-T	EPA 515.4	ug/L	0.2	--		--		ND		--		ND	
2,4,5-TP (Silvex)	EPA 515.4	ug/L	0.2	--		--		ND		--		ND	
2,4-D (EPA Method 515.4)	EPA 515.4	ug/L	5	--		--		ND		--		ND	
2,4-DB	EPA 515.4	ug/L	2	--		--		ND		--		ND	
3,5-Dichlorobenzoic acid	EPA 515.4	ug/L	0.5	--		--		ND		--		ND	
Acifluorfen	EPA 515.4	ug/L	0.2	--		--		ND		--		ND	
Bentazon	EPA 515.4	ug/L	0.5	--		--		ND		--		ND	
Dicamba	EPA 515.4	ug/L	0.1	--		--		ND		--		ND	
Dalapon	EPA 515.4	ug/L	1	--		--		ND		--		1.7	
Dichlorprop	EPA 515.4	ug/L	0.5	--		--		ND		--		ND	
Dinoseb	EPA 515.4	ug/L	0.2	--		--		ND		--		ND	
Pentachlorophenol (EPA Method 515.4)	EPA 515.4	ug/L	0.04	--		--		ND		--		ND	
Picloram	EPA 515.4	ug/L	0.1	--		--		ND		--		ND	
Tot DCPA Mono&Diacid Degradate	EPA 515.4	ug/L	0.1	--		--		ND		--		ND	
VOCs													
1,1,1,2-Tetrachloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
1,1,1-Trichloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
1,1,2,2-Tetrachloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
1,1,2-Trichloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
1,1-Dichloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
1,1-Dichloroethylene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
1,1-Dichloropropene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
1,2,3-Trichlorobenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
1,2,3-Trichloropropane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
1,2,4-Trichlorobenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
1,2,4-Trimethylbenzene	EPA 524.2	ug/L	0.5	0.71		ND		ND		ND		ND	
1,2-Dichloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
1,2-Dichloropropane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
1,3,5-Trimethylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
1,3-Dichloropropane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
2,2-Dichloropropane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
2-Butanone (MEK)	EPA 524.2	ug/L	5	ND		ND		ND		ND		ND	
2-Hexanone	EPA 524.2	ug/L	10	ND		ND		ND		ND		ND	
4-Methyl-2-Pentanone (MIBK)	EPA 524.2	ug/L	5	ND		ND		ND		ND		ND	
Benzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Bromobenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Bromochloromethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Bromoethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Bromomethane (Methyl Bromide)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Chlorobenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Chloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Chloromethane(Methyl Chloride)	EPA 524.2	ug/L	0.5	ND		ND		0.73		ND		ND	
Dibromomethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Carbon disulfide	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Carbon Tetrachloride	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
cis-1,2-Dichloroethylene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
cis-1,3-Dichloropropene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Dichlorodifluoromethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	

				Budd Inlet Reclaimed Water Plant (BIRWP)									
				Sampling Event 3 (05/20/2015)				Sampling Event 4 (08/19/2015)					
				BIRWP-WASTEWATER		BIRWP - RECLAIMED		BIRWP-WASTEWATER		BIRWP-SECONDARY		BIRWP-RECLAIMED	
ANALYTE	METHOD	UNIT	MRL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Dichloromethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		0.56	
Di-isopropyl ether	EPA 524.2	ug/L	3	ND		ND		ND		ND		ND	
Ethyl benzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Hexachlorobutadiene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Isopropylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
m,p-Xylenes	EPA 524.2	ug/L	0.5	1.3		ND		ND		ND		ND	
m-Dichlorobenzene (1,3-DCB)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Methyl Tert-butyl ether (MTBE)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Naphthalene (EPA Method 524.2)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
n-Butylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
n-Propylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
o-Chlorotoluene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
o-Dichlorobenzene (1,2-DCB)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
o-Xylene	EPA 524.2	ug/L	0.5	0.61		ND		ND		ND		ND	
p-Chlorotoluene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
p-Dichlorobenzene (1,4-DCB)	EPA 524.2	ug/L	0.5	ND		ND		0.52		ND		ND	
p-Isopropyltoluene	EPA 524.2	ug/L	0.5	0.5		ND		0.52		ND		ND	
sec-Butylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Styrene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
tert-amyl Methyl Ether	EPA 524.2	ug/L	3	ND		ND		ND		ND		ND	
tert-Butyl Ethyl Ether	EPA 524.2	ug/L	3	ND		ND		ND		ND		ND	
tert-Butylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Tetrachloroethylene (PCE)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Toluene	EPA 524.2	ug/L	0.5	4.6		ND		3.8		ND		ND	
Total 1,3-Dichloropropene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Total xylenes	EPA 524.2	ug/L	0.5	1.9		ND		ND		ND		ND	
trans-1,2-Dichloroethylene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
trans-1,3-Dichloropropene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Trichloroethylene (TCE)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Trichlorofluoromethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Trichlorotrifluoroethane (Freon 113)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND	
Vinyl chloride (VC)	EPA 524.2	ug/L	0.3	ND		ND		ND		ND		ND	
SVOCS													
2,4-Dinitrotoluene	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
2,6-Dinitrotoluene	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
4,4-DDD	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
4,4-DDE	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
4,4-DDT	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Acenaphthene	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Acenaphthylene	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Acetochlor	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Alachlor	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Aldrin (EPA Method 525.2)	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Alpha-BHC	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
alpha-Chlordane	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Anthracene	EPA 525.2	ug/L	0.02	--		--		ND		--		ND	
Atrazine (EPA Method 525.2)	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Benz(a)Anthracene	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Benzo(a)pyrene	EPA 525.2	ug/L	0.02	--		--		ND		--		ND	
Benzo(b)Fluoranthene	EPA 525.2	ug/L	0.02	--		--		ND		--		ND	
Benzo(g,h,i)Perylene	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Benzo(k)Fluoranthene	EPA 525.2	ug/L	0.02	--		--		ND		--		ND	
Beta-BHC	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Bromacil(EPA Method 525.2)	EPA 525.2	ug/L	0.2	--		--		ND		--		ND	
Butachlor	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Butylbenzylphthalate	EPA 525.2	ug/L	0.5	--		--		1.2		--		ND	
Chlorobenzilate	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Chloroneb	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Chlorothalonil(Draconil,Bravo)	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Chlorpyrifos (Dursban)	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Chrysene	EPA 525.2	ug/L	0.02	--		--		ND		--		ND	
Delta-BHC	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Di-(2-Ethylhexyl)adipate	EPA 525.2	ug/L	0.6	--		--		ND		--		ND	
Di(2-Ethylhexyl)phthalate	EPA 525.2	ug/L	0.6	--		--		2.1		--		ND	
Diazinon (Qualitative)	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Dibenz(a,h)Anthracene	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Dichlorvos (DDVP)	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Dieldrin (EPA Method 525.2)	EPA 525.2	ug/L	0.01	--		--		ND		--		ND	
Diethylphthalate	EPA 525.2	ug/L	0.5	--		--		3.9		--		ND	
Dimethoate	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Dimethylphthalate	EPA 525.2	ug/L	0.5	--		--		ND		--		ND	
Di-n-Butylphthalate	EPA 525.2	ug/L	1	--		--		ND		--		ND	
Di-N-octylphthalate	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Endosulfan I (Alpha)	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Endosulfan II (Beta)	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Endosulfan Sulfate	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Endrin (EPA Method 525.2)	EPA 525.2	ug/L	0.01	--		--		ND		--		ND	
Endrin Aldehyde	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
EPTC	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Fluoranthene	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Fluorene	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
gamma-Chlordane	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Heptachlor (EPA Method 525.2)	EPA 525.2	ug/L	0.01	--		--		ND		--		ND	
Heptachlor Epoxide (isomer B)	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Hexachlorobenzene	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Hexachlorocyclopentadiene	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Indeno(1,2,3,c,d)Pyrene	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Isophorone	EPA 525.2	ug/L	0.5	--		--		ND		--		ND	
Lindane	EPA 525.2	ug/L	0.04	--		--		ND		--		ND	
Malathion	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Methoxychlor (EPA Method 525.2)	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Metolachlor	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Metribuzin	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Molinate	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Naphthalene (EPA Method 525.2)	EPA 525.2	ug/L	0.5	--		--		ND		--		ND	
Parathion	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Pendimethalin	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Pentachlorophenol (EPA Method 525.2)	EPA 525.2	ug/L	0.04	--		--		ND		--		ND	
Permethrin (mixed isomers)	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Phenanthrene	EPA 525.2	ug/L	0.04	--		--		ND		--		ND	
Propachlor	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Pyrene	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Simazine (EPA Method 525.2)	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Terbacil	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Terbuthylazine	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	
Thiobencarb	EPA 525.2	ug/L	0.2	--		--		ND		--		ND	
Total PAH	EPA 525.2	ug/L	0.02	--		--		ND		--		ND	
trans-Nonachlor	EPA 525.2	ug/L	0.05	--		--		ND		--		ND	
Trifluralin	EPA 525.2	ug/L	0.1	--		--		ND		--		ND	

MRL = Minimum Reporting Level; ND = Not Detected above MRL; "--" = Not Analyzed; Qual = Data Qualifier
ND (<#) = Not Detected and MRL is higher than the method MRL due to dilutions
mg/L = milligrams per liter (ppm); µg/L = micrograms per liter (ppb); ng/L = nanograms per liter (ppt)
µS/cm = microsiemens per centimeter; mV = millivolts
MPN/100ml = Most Probable Number (colony forming units) per 100 ml; PFU/100ml = Plaque Forming Units per 100 ml
PFC = Perfluorinated Compound; PBDE = Polybrominated Diphenyl Ether
DBP = Disinfection Byproduct; PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound; SVOC = Semivolatile Organic Compound
Notes:
1) Some analytes are listed twice as they were analyzed via multiple methods.
2) Data qualifiers:
J = Value is detected and the result is estimated.
J- = Value is detected and the result is estimated and biased low.
J+ = Value is detected and the result is estimated and biased high.
UJ = Result is a non-detect and the value is estimated.
R = Result rejected.

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				Martin Way Reclaimed Water Plant (MWRWP)																	
				Sampling Event 1 (11/12/2014)												Sampling Event 2 (02/17/2015)					
				MWRWP-WASTEWATER		MWRWP-RECLAIMED		MWRWP-PRE-WETLANDS		MWRWP-POST-WETLANDS		DUP MWRWP-POST-WETLANDS		MWRWP-WASTEWATER		MWRWP-RECLAIMED		MWRWP-POST-WETLANDS	
ANALYTE	METHOD	UNIT	MRL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
FIELD PARAMETERS																			
pH		units	N/A	7.82		7.21		7.25		7.19		7.19		7.68		7.06		7.30	
Temperature		˚C	N/A	14.3		15.4		13.9		10.0		10.0		17.2		18.6		10.9	
Specific Conductance		µS/cm	N/A	886.0		562.4		536.4		515.8		515.8		824.0		552.8		508.5	
Oxidation Reduction Potential (ORP)		mV	N/A	65.8		424.1		306.9		144.3		144.3		92.0		415.2		82.9	
Dissolved Oxygen		mg/L	N/A	2.48		5.46		5.43		3.01		3.01		2.03		5.56		9.35	
Free Cl		mg/L	N/A	0.0		1.3		0.2		0.0		0.0		0.0		0.6		0.0	
Total Cl		mg/L	N/A	0.1		1.8		0.4		0.0		0.0		0.0		1.0		0.0	
LABORATORY GENERAL WATER QUALITY PARAMETERS																			
Alkalinity	SM 2320B	mg/L	2	310		130		120		130		130		310		110		110	
Alkalinity (as HCO3, calc)	SM2330B	mg/L	2	380		160		150		160		160		380		140		140	
Carbonate	SM2330B	mg/L	2	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Hydroxide	SM2330B	mg/L	2	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Carbon Dioxide	SM4500-CO2-D	mg/L	2	*ND*		*ND*		*ND*		*ND*		*ND*		25		14		7.3	
Specific Conductance	SM2510B	umho/cm	2	890		550		520		510		510		860		510		490	
Turbidity	Default	NTU	0	0.99		0.99		0.99		--		--		0.99		0.99		0.99	
WASTEWATER/RECLAIMED WATER PARAMETERS																			
Total Suspended Solids	SM 2540D	mg/L	10	210		*ND*		*ND*		*ND*		*ND*		200		*ND*		*ND*	
Total Dissolved Solid	E160.1/SM2540C	mg/L	10	370		340		340		320		320		350		340		310	
Total Organic Carbon	SM5310C/E415.3	mg/L	0.3	92		6.4		5.6		5.3		5.3		94		13		13	
Chemical Oxygen Demand	EPA 410.4	mg/L	5	570		19		18		21		20		550		10		10	
Dissolved Organic Carbon - Final	Allgeier, 1996	mg/L	0.3	40		4.7		6		6		6	J	35		5.3		8.1	
Dissolved Organic Carbon - Initial	Allgeier, 1996	mg/L	0.3	64		5.5	J+	5.4	J+	5.2	J+	4.5	J+	58		5.9	J+	6.6	
Biochemical Oxygen Demand	SM5210B 405.1	mg/L	3	320	J	1.1	J	1.3	J	2.5	J	2.2	J	280		*ND*		*ND*	
Biodegradable Dissolved Organic Carbon	Allgeier, 1996	mg/L	0.3	24		0.76	J+	*ND*		*ND*		*ND*		23		0.62	J+	*ND (<3)*	
Bromide	EPA 300.0	ug/L	5	110		77		61	J	57		56		81		44		46	
Chloride	EPA 300.0	mg/L	1	47		50		48		48		48		46		53		52	
Fluoride	SM 4500F-C	mg/L	0.05	0.13		0.088		0.09		0.087	J	0.066	J	0.11		0.095		0.092	
Sulfate	EPA 300.0	mg/L	0.5	22		25		25		23		24		20		28		26	
SulfideTotal	SM4500SD/376.2	mg/L	0.05	0.24		*ND*		*ND*		*ND*		*ND*		0.33		*ND*		*ND*	
Sulfur Total ICAP	EPA 200.7	mg/L	0.1	640		--		--		--		--		10		--		--	
Total Hardness as CaCO3 by ICP (calc)	SM 2340B	mg/L	3	140		--		--		--		--		130		--		--	
Total Chlorine	SM 4500-CL G	mg/L	0.1	*ND*		1.2	J-	0.34	J-	*ND*		*ND*		*ND*		0.34	J-	*ND*	
Free Chlorine	SM 4500CL-G/HACH	mg/L	0.1	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Chloramines	SM 4500CL-G/HACH	mg/L	0.1	*ND*	*UJ*	1.1	J-	0.26	J-	*ND*	*UJ*	*ND*	*UJ*	*ND*	*UJ*	0.31	J-	*ND*	*UJ*
Anion Sum - Calculated	SM 1030E	meq/L	0.001	--		--		--		--		--		7.9		4.9		4.5	
Cation Sum - Calculated	SM 1030E	meq/L	0.001	--		--		--		--		--		5.2		--		--	
Cation Sum - Manual Calculation	SM 1030E	%	0	--		--		--		--		--		--		--		--	
Cation/Anion Difference	SM 1030E	%	0	--		--		--		--		--		0.85		--		--	
Cation Balance with NH3		meq/L	0	--		--		--		--		--		8		--		--	
PATHOGENS																			
Total Coliform	SM 9222B	MPN/100 mL	1	>241960	J	<1	J	<1	J	81	J	65	J	>2419600		*ND*		--	
Fecal Coliform	SM 9222D	MPN/100 mL	1	--		<1	J	--		--		13	J	--		*ND*		--	
Fecal Coliform	SM 9222D	CFU/mL	1	>241960	J	--		<1	J	23	J	--		>2419600	J	--		--	
Cryptosporidium	EPA 1623	oocysts/L	NA	<189.753		<10.526		<9.091		21.622		30.769		--		--		--	
Giardia	EPA 1623	Organism/L	NA	569.26		<10.526		<9.091		118.919		71.795		--		--		--	
Somatic coliphage titer	FR59#28 1602	P/100mL	1	570000		<1		<1		20	J	14	J	27000		<1		1	
Male-specific coliphage titer	FR59#28 1602	P/100mL	1	360000		<1		<1		<1		<1		25000		<1		<1	
NUTRIENTS																			
Nitrate (as Nitrogen)	EPA 300.0	mg/L	0.1	*ND (<0.2)*		4.6		4.3		2.3		2.4		*ND (<0.2)*		8.7		4.5	
Nitrite	EPA 300.0	mg/L	0.05	*ND (<0.1)*		*ND*		*ND (<0.1)*		*ND (<0.1)*		*ND (<0.1)*		*ND (<0.1)*		*ND (<0.1)*		*ND (<0.1)*	
Nitrate+Nitrite	EPA 300.0	mg/L	0.1	*ND (<0.2)*		4.6		4.3		2.3		2.4		*ND (<0.2)*		8.7		4.5	
Ammonia Nitrogen	EPA 350.1	mg/L	0.05	44	J+	1.1		*ND*		0.11		0.11		40		*ND*		*ND*	
Kjeldahl Nitrogen	EPA 351.2	mg/L	0.2	63		2.1		*ND*		0.73		0.87		73		0.82		0.88	
Total Nitrogen	EPA 353-351	mg/L	0.2	63		6.7		4.3		3		3.3		73		9.5		5.4	
Dissolved Orthophosphate (as P)	4500P-E/365.1	mg/L	0.01	4.6		3.6		3.3		3.3		3.3		4.9		3.6		3.8	
Dissolved Total Phosphorus	SM4500-PE/EPA 365.1	mg/L	0.4	4.8		3.7		3.6		3.4		3.4		4.9	J+	4	J+	3.6	J+
Orthophosphate (as P)	4500P-E/365.1	mg/L	0.01	4.8		3.3		3.6	J-	3.7		3.2		6		3.1		3.3	
Total Phosphorus	SM4500-PE/EPA 365.1	mg/L	0.02	8.2		3.6		3.4		3.3		3.3		9.9		3.9		3.8	
METALS (DISSOLVED)																			
Aluminum	EPA 200.8	ug/L	20	25		*ND*		*ND*		*ND*		*ND*		34		*ND*		*ND*	
Antimony	EPA 200.8	ug/L	1	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Arsenic	EPA 200.8	ug/L	1	1.1		1.1		1.1		1		1.1		*ND*		*ND*		*ND*	
Barium	EPA 200.8	ug/L	2	7.9		8.3		8.1		8.6		8.5		6.6		*ND*		7.3	
Beryllium	EPA 200.8	ug/L	1	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Boron	EPA 200.7	mg/L	0.05	0.2		0.24		0.24		0.21		0.22		0.16		0.23		0.21	
Cadmium	EPA 200.8	ug/L	0.5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Calcium	EPA 200.7	mg/L	1	28		32		29		29		30		24		30		25	
Chromium	EPA 200.8	ug/L	1	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Copper	EPA 200.8	ug/L	2	20		18		6.3		*ND*		*ND*		25		*ND*		4	
Iron	EPA 200.7	mg/L	0.02	0.06		0.022		0.024		*ND*		*ND*		0.061		0.02		*ND*	
Lead	EPA 200.8	ug/L	0.5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Magnesium	EPA 200.7	mg/L	0.1	9.2		9.5		8.9		9.3		9.7		9.6		9.8		8	
Manganese	EPA 200.8	ug/L	2	18		24		11		6.6		6.6		17		*ND*		3.2	
Mercury	EPA 245.1	ug/L	0.2	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Potassium	EPA 200.7	mg/L	1	18		16		15		15		16		16		15		14	
Selenium	EPA 200.8	ug/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Silica	EPA 200.7	mg/L	0.5	41		42		40		38		40		39		42		29	
Silicon	EPA 200.7	mg/L	0.2	19		19		19		18		19		18		20		14	
Silver	EPA 200.8	ug/L	0.5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Sodium	EPA 200.7	mg/L	1	51		55		52		53		56		46		54		49	
Thallium	EPA 200.8	ug/L	1	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Zinc	EPA 200.8	ug/L	20	45		84		110	J+	51	J+	51	J+	79		*ND*		67	
METALS (TOTAL)																			
Aluminum	EPA 200.8	ug/L	20	290		--		--		--		--		440		--		--	
Antimony	EPA 200.8	ug/L	1	*ND*		--		--		--		--		*ND (<5)*		--		--	
Arsenic	EPA 200.8	ug/L	1	1.2		--		--		--		--		2		--		--	
Barium	EPA 200.8	ug/L	2	40		--		--		--		--		27		--		--	
Beryllium	EPA 200.8	ug/L	1	*ND*		--		--		--		--		*ND*		--		--	
Boron	EPA 200.7	mg/L	0.05	0.25		--		--		--		--		0.2		--		--	
Cadmium	EPA 200.8	ug/L	0.5	*ND*		--		--		--		--		5.8		--		--	
Calcium	EPA 200.7	mg/L	1	40		--		--		--		--		33		--		--	
Chromium	EPA 200.8	ug/L	1	1.5		--		--		--		--		2		--		--	
Copper	EPA 200.8	ug/L	2	87		--		--		--		--		110		--		--	
Iron	EPA 200.7	mg/L	0.02	0.44		--		--		--		--		0.44		--		--	
Lead	EPA 200.8	ug/L	0.5	1.4		--		--		--		--		7.5		--		--	
Magnesium	EPA 200.7	mg/L	0.1	10		--		--		--		--		11		--		--	
Manganese	EPA 200.8	ug/L	2	38		--		--		--		--		35		--		--	
Mercury	EPA 245.1	ug/L	0.2	*ND*		--		--		--		--		0.2		--		--	
Nickel	EPA 200.8	ug/L	5	*ND*		--		--		--		--		*ND*		--		--	
Potassium	EPA 200.7	mg/L	1	18		--		--		--		--		19		--		--	
Selenium	EPA 200.8	ug/L	5	*ND*		--		--		--		--		*ND*		--		--	
Silica	EPA 200.7	mg/L	0.5	43		--		--		--		--		41		--		--	
Silver	EPA 200.8	ug/L	0.5	*ND*		--		--		--		--		*ND (<2.5)*		--		--	
Sodium	EPA 200.7	mg/L	1	52		--		--		--		--		49		--		--	
Thallium	EPA 200.8	ug/L	1	*ND (<10)*		--		--		--		--		*ND*		--		--	
Zinc	EPA 200.8	ug/L	20	160	J+	--		--		--		--		360		--		--	
RESIDUAL CHEMICALS																			
N-Nitroso dimethylamine (NDMA)	EPA 521	ng/L	2	4.6		*ND*		*ND*		*ND*		*ND*		*ND*	*UJ*	*ND*		*ND*	
1,4-Dioxane	EPA 522	ug/L	0.07	0.46	J-	0.72		0.77		0.6		0.54		0.71		0.73		0.48	
1,7-Dimethylxanthine	LC-MS-MS	ng/L	10	*ND*		36		*ND*		22		19		1100		*ND*		*ND*	
2,4-D (Method LC-MS-MS)	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
4-n-Octylphenol diethoxylate	LC-MS-MS-WW	ng/L	100	110		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
4-n-Octylphenol monoethoxylate	LC-MS-MS-WW	ng/L	100	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
4-nonylphenol - semi quantitative	LC-MS-MS	ng/L	100	1600	J	180	J	*ND*	*UJ*	*ND*	*UJ*	*ND*	*UJ*	3600	J	*ND*	*UJ*	*ND*	*UJ*
4-para-Nonylphenol	LC-MS-MS-WW	ng/L	100	240		*ND*		*ND*		*ND*		*ND*		--		--		--	
4-tert-octylphenol	LC-MS-MS	ng/L	50	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Acesulfame-K	LC-MS-MS	ng/L	20	24000		220		220		550		560		54000		850		540	
Acetaminophen	LC-MS-MS	ng/L	5	42000		7		*ND*		*ND*		*ND*		120000		*ND*		*ND*	
Albuterol	LC-MS-MS	ng/L	5	12		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Amoxicillin (semi-quantitative)	LC-MS-MS	ng/L	20	22000	J	*ND*	*UJ*	*ND*	*UJ*	33	J	*ND*	*UJ*	49000	J	*ND*	*UJ*	*ND*	*UJ*
Andorostenedione	LC-MS-MS	ng/L	5	28		*ND*		*ND*		*ND*		*ND*		160		*ND*		*ND*	
Atenolol	LC-MS-MS	ng/L	5	640		36	J-	27	J-	9.4	J	6.3	J	3000		110		37	
Atrazine (Method LC-MS-MS)	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Azithromycin	LC-MS-MS	ng/L	20	--		--		--		--		--		--		--		--	
Bendroflumethiazide	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Bezafibrate	LC-MS-MS	ng/L	5	*ND (<100)*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Bisphenol A	LC-MS-MS-WW	ng/L	100	--		--		--		--		--		--		--		--	
BPA (Bisphenol A, low detection limit)	LC-MS-MS	ng/L	10	*ND*		*ND*		*ND*		*ND*		*ND*		910		*ND*		*ND*	
Bromacil (Method LC-MS-MS)	LC-MS-MS	ng/L	5	14		*ND*		*ND*		14	J	5.8	J	*ND*		*ND*		*ND*	
Butalbital	LC-MS-MS	ng/L	5	*ND*		11		*ND*		7.8		7.8		8.4		7.3		8.5	
Butylparben	LC-MS-MS	ng/L	5	12		*ND*		*ND*		*ND*		*ND*		42		*ND*		*ND*	
Caffeine	LC-MS-MS	ng/L	5	68000		*ND*		*ND*		5.7		*ND*		150000		*ND*		*ND*	
Carbadox	LC-MS-MS	ng/L	5	*ND*		*ND*	*R*	*ND*	*R*	*ND*		*ND*		*ND*		*ND*		*ND*	
Carbamazepine	LC-MS-MS	ng/L	5	250		200		170		260		230		580		300		310	
Carisoprodol	LC-MS-MS	ng/L	5	*ND*		10		8.2		15		16		*ND*		110		16	
Chloridazon	LC-MS-MS	ng/L	5	*ND*		9.2		*ND*	*UJ*	5.9		*ND*		*ND*		*ND*		*ND*	
Chloramphenicol	LC-MS-MS	ng/L	10	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Chlorotoluron	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Cimetidine	LC-MS-MS	ng/L	5	160	J	*ND*	*UJ*	*ND*	*UJ*	*ND*	*UJ*	*ND*	*UJ*	190	J	*ND*	*UJ*	*ND*	*UJ*
Clofibric Acid	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Cotinine	LC-MS-MS	ng/L	10	1900		17		15		15		13		3600		23		17	
Cyanazine	LC-MS-MS	ng/L	5	*ND*		6		*ND*		5.1		*ND*		5.6		*ND*		*ND*	
DACT	LC-MS-MS	ng/L	5	*ND*		12		*ND*		7		*ND*		*ND*		*ND*		*ND*	
DEA	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		13		20		*ND*		*ND*		*ND*	
DEET	LC-MS-MS	ng/L	10	210		11		15		18		16		*ND*		140		16	
Dehydronifedipine	LC-MS-MS	ng/L	5	5.4		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
DIA	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Diazepam	LC-MS-MS	ng/L	5	7.5		*ND*		*ND*		*ND*		*ND*		*ND*		9.3		*ND*	
Diclofenac	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		170		*ND*		*ND*	
Diuron	LC-MS-MS	ng/L	5	5.2		6.5		7.3		12		11		*ND*		*ND*		*ND*	
Dilantin	LC-MS-MS	ng/L	20	170		92		86		98		83		*ND*		72		66	
Diltiazem	LC-MS-MS	ng/L	5	120		18		*ND*		*ND*		*ND*		150		*ND*		*ND*	
Erythromycin	LC-MS-MS	ng/L	10	100		16	J+	10	J+	*ND*		*ND*		37		*ND*		*ND*	
Estradiol - 17 beta	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Estradiol - 17 beta (low detection)	LC-MS-MS-WW	ng/L	0.5	3.2		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Estrone	LC-MS-MS	ng/L	0.5	*ND*		*ND*		*ND*		*ND*		*ND*		35		*ND*		*ND*	
Estrone (low detection)	LC-MS-MS-WW	ng/L	0.5	1.1		*ND*		*ND*		0.77	J	1	J	*ND*		*ND*		0.75	
Ethinyl Estradiol - 17 alpha	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Ethinyl Estradiol - 17 alpha (low detection)	LC-MS-MS-WW	ng/L	0.5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Ethylparaben	LC-MS-MS	ng/L	20	59		*ND*		*ND*		*ND*		*ND*		340		*ND*		*ND*	
Flumeqine	LC-MS-MS	ng/L	10	510		65		*ND*		98		91		*ND*		*ND*		*ND*	

				Martin Way Reclaimed Water Plant (MWRWP)													
				Sampling Event 1 (11/12/2014)										Sampling Event 2 (02/17/2015)					
				MWRWP-WASTEWATER		MWRWP-RECLAIMED		MWRWP-PRE-WETLANDS		MWRWP-POST-WETLANDS		DUP MWRWP-POST-WETLANDS		MWRWP-WASTEWATER		MWRWP-RECLAIMED		MWRWP-POST-WETLANDS	
ANALYTE	METHOD	UNIT	MRL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Fluoxetine	LC-MS-MS	ng/L	10	ND		65	J+	72	J+	15		17		ND		62		27	
Gemfibrozil	LC-MS-MS	ng/L	5	1100		94		ND		14	J	33	J	3700		ND		8.7	
Ibuprofen	LC-MS-MS	ng/L	10	460		ND		ND		ND		ND		21000		ND		ND	
Iohexal	LC-MS-MS	ng/L	10	1800		240		500		230	J	300	J	15000		410		760	
Iopromide	LC-MS-MS	ng/L	5	17		9.1		ND		35		34		22		61		57	
Isobutylparaben	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		41		ND		ND	
Isoproturon	LC-MS-MS	ng/L	100	ND		ND		ND		ND		ND		ND		ND		ND	
Ketoprofen	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
Ketorolac	LC-MS-MS	ng/L	5	7.9		14		ND		ND		ND		ND		ND		ND	
Lidocaine	LC-MS-MS	ng/L	5	58		55		ND		12	J	9.1	J	690		ND		14	
Lincomycin	LC-MS-MS	ng/L	10	ND		ND		ND		ND		ND		1000		ND		ND	
Linuron	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
Lopressor	LC-MS-MS	ng/L	20	370		280		130		46		45		ND		190		ND	
Meclofenamic Acid	LC-MS-MS	ng/L	5	27		ND		ND		ND		ND		ND		ND		ND	
Meprobamate	LC-MS-MS	ng/L	5	55		31		19		43		40		68		60		42	
Metazachlor	LC-MS-MS	ng/L	5	ND	R	ND	R	ND	R	ND	R	ND	R	ND	R	ND	R	ND	R
Metformin	LC-MS-MS	ng/L	10	29000		190		200		200		190		6800		61		31	
Methylparaben	LC-MS-MS	ng/L	20	ND		ND		ND		ND		ND		87		ND		ND	
Naproxen	LC-MS-MS	ng/L	10	10		25		ND		ND		18		5200		ND		ND	
Nifedipine	LC-MS-MS	ng/L	20	58	J	20	J	ND	UJ	ND	UJ	ND	UJ	64	J	ND	UJ	ND	UJ
Nonylphenol Diethoxylate	LC-MS-MS-WW	ng/L	100	870		ND		ND		ND		ND		350		ND		ND	
Nonylphenol Monoethoxylate	LC-MS-MS-WW	ng/L	100	ND		ND		ND		ND		ND		ND		ND		ND	
Norethisterone	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
Octylphenol	LC-MS-MS-WW	ng/L	100	ND		ND		ND		ND		ND		--		--		--	
Oxolinic acid	LC-MS-MS	ng/L	10	190		36		ND		64		57		ND		ND		ND	
Pentoxifylline	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		820		7.6		ND	
Phenazone	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
Primidone	LC-MS-MS	ng/L	5	33		64	J+	170	J+	170		140		280		190		140	
Progesterone	LC-MS-MS	ng/L	5	16		ND		ND		ND		ND		ND		ND		ND	
Propazine	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
Propylparaben	LC-MS-MS	ng/L	5	970		ND		ND		ND		ND		2700		ND		ND	
Quinoline	LC-MS-MS	ng/L	5	32		7.8		ND		7.8		6.9		270		ND		ND	
Simazine (Method LC-MS-MS)	LC-MS-MS	ng/L	5	11		6.1		ND		7.7		6.3		ND		ND		ND	
Sucralose	LC-MS-MS	ng/L	100	100000		52000		28000		33000	J	54000	J	62000		35000		36000	
Sulfachloropyridazine	LC-MS-MS	ng/L	5	ND		ND	UJ	ND	UJ	ND		ND		ND		ND		ND	
Sulfadiazine	LC-MS-MS	ng/L	5	ND		14		ND		ND		ND		ND		ND		ND	
Sulfadimethoxine	LC-MS-MS	ng/L	5	14		ND		ND		ND		ND		ND		ND		ND	
Sulfamerazine	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
Sulfamethazine	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
Sulfamethizole	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
Sulfamethoxazole	LC-MS-MS	ng/L	5	1800		320		21		50	J	36	J	2200		19		38	
Sulfathiazole	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
TCEP	LC-MS-MS	ng/L	10	110		39	J-	74	J-	66	J	46	J	47		120		120	
TCPP	LC-MS-MS	ng/L	100	1000		240		310		450		370		1000		560		310	
TDCPP	LC-MS-MS	ng/L	100	360		190		210		210	J	170	J	360		230		180	
Theobromine	LC-MS-MS	ng/L	10	1100		ND		ND		ND		ND		27000		66		ND	
Thiabendazole	LC-MS-MS	ng/L	5	130		200		17		600	J	480	J	ND		ND		ND	
Testosterone	LC-MS-MS	ng/L	5	15		ND		ND		ND		ND		ND		6.1		7.4	
Triclocarban	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
Triclosan	LC-MS-MS	ng/L	10	570		ND		ND		ND		ND		1100		ND		ND	
Trimethoprim	LC-MS-MS	ng/L	5	180		8.3		ND		ND		ND		530		ND		ND	
Warfarin	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		17		ND		ND	
PFCs																			
Perfluoro butanoic acid- PFBA	MWH PFC	ng/L	10	ND		ND		ND		ND		ND		32		ND		ND	
Perfluoro octanesulfonate-PFOS	MWH PFC	ng/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
Perfluoro octanesulfonic acid - PFOS	MWH PFC	ng/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
Perfluoro octanoic acid - PFOA	MWH PFC	ng/L	5	5.5	J	16	J	12		18		22		ND		20		16	
Perfluoro-1-butanesulfonate	MWH PFC	ng/L	5	ND		ND		ND		5.6		5.5		ND		ND		ND	
Perfluoro-1-butanesulfonic acid	MWH PFC	ng/L	5	ND		ND		ND		5		5.7		ND		ND		ND	
Perfluoro-1-hexanesulfonate	MWH PFC	ng/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
Perfluoro-1-hexanesulfonic acid	MWH PFC	ng/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
Perfluoro-n-decanoic acid	MWH PFC	ng/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
Perfluoro-n-heptanoic acid	MWH PFC	ng/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
Perfluoro-n-hexanoic acid	MWH PFC	ng/L	5	14		23		18		43		41		5.2		81		71	
Perfluoro-n-nonanoic acid	MWH PFC	ng/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
Perfluoropentanoic acid	MWH PFC	ng/L	5	74		29		13		31		45		--		--		--	
PBDEs/EDB/DBCP																			
BDE-100	GC-QQQ PBDE	ng/L	5	ND	UJ	ND	UJ	ND		ND		ND		--		--		--	
BDE-153	GC-QQQ PBDE	ng/L	5	ND	UJ	ND	UJ	ND		ND		ND	UJ	--		--		--	
BDE-154	GC-QQQ PBDE	ng/L	5	ND	UJ	ND	UJ	ND		ND		ND	UJ	--		--		--	
BDE-183	GC-QQQ PBDE	ng/L	5	ND	UJ	ND		ND		ND		ND		--		--		--	
BDE-209	GC-QQQ PBDE	ng/L	100	ND	UJ	ND	UJ	ND		ND		ND	UJ	--		--		--	
BDE-28	GC-QQQ PBDE	ng/L	5	ND	UJ	ND		ND		ND		ND		--		--		--	
BDE-47	GC-QQQ PBDE	ng/L	5	ND	UJ	ND		ND		ND		ND		--		--		--	
BDE-99	GC-QQQ PBDE	ng/L	5	ND	UJ	ND		ND		ND		ND		--		--		--	
Bifenthrin	GC-QQQ PBDE	ng/L	5	ND	UJ	ND		ND		ND		ND		--		--		--	
cis-Permethrin	GC-QQQ PBDE	ng/L	5	7.8	J-	ND		ND		ND		ND		--		--		--	
Fipronil	GC-QQQ PBDE	ng/L	2	2.7	J-	51		ND		3.1		3.5		--		--		--	
Total Permethrin	GC-QQQ PBDE	ng/L	10	18	J-	ND		ND		ND		ND		--		--		--	
trans-Permethrin	GC-QQQ PBDE	ng/L	5	9.8	J-	ND		ND		ND		ND		--		--		--	
Dibromochloropropane (DBCP)	EPA 551.1	ug/L	0.01	ND		0.011		ND		ND		ND		ND		ND		ND	
Ethylene Dibromide (EDB)	EPA 551.1	ug/L	0.01	ND		ND		ND		ND		ND		ND		ND		ND	
DBPs																			
Chloroform (Trichloromethane)	EPA 524.2	ug/L	0.5	1.3		15		38		10		9.4		1.3		12		14	
Bromoform	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Bromodichloromethane	EPA 524.2	ug/L	0.5	ND		4.5		14		1.7		1.6		ND		3.9		2.3	
Chlorodibromomethane	EPA 524.2	ug/L	0.5	ND		0.87		2		ND		ND		ND		0.55		ND	
Total Trihalomethanes (TTHM)	EPA 524.2	ug/L	0.5	1.3		20		54		12		11		1.3		16		16	
Bromochloroacetic acid	SM 6251B	ug/L	1	ND		2		3.5		ND		ND		ND		3.5		ND	
Dibromoacetic acid	SM 6251B	ug/L	1	ND		ND		ND		ND		ND		ND		ND		ND	
Dichloroacetic acid	SM 6251B	ug/L	1	2.8		17		20		ND		ND		1.3		18		ND	
Monobromoacetic acid	SM 6251B	ug/L	1	ND		ND		ND		ND		ND		ND		ND		ND	
Monochloroacetic acid	SM 6251B	ug/L	2	2.4		3.6		2.2		ND		ND		ND		ND		ND	
Total Haloacetic Acids (HAA5)	SM 6251B	ug/L	2	11		39		50		ND		ND		4.7		41		ND	
Trichloroacetic acid	SM 6251B	ug/L	1	5.9		18		28		ND		ND		3.4		23		ND	
PCBs																			
PCB 1016 Aroclor	EPA 505	ug/L	0.08	ND	UJ	ND		ND		ND		ND		--		--		--	
PCB 1221 Aroclor	EPA 505	ug/L	0.1	ND	UJ	ND		ND		ND		ND		--		--		--	
PCB 1232 Aroclor	EPA 505	ug/L	0.1	ND	UJ	ND		ND		ND		ND		--		--		--	
PCB 1242 Aroclor	EPA 505	ug/L	0.1	ND	UJ	ND		ND		ND		ND		--		--		--	
PCB 1248 Aroclor	EPA 505	ug/L	0.1	ND	UJ	ND		ND		ND		ND		--		--		--	
PCB 1254 Aroclor	EPA 505	ug/L	0.1	ND	UJ	ND		ND		ND		ND		--		--		--	
PCB 1260 Aroclor	EPA 505	ug/L	0.1	ND	UJ	ND		ND		ND		ND		--		--		--	
Total PCBs	EPA 505	ug/L	0.1	ND	UJ	ND		ND		ND		ND		--		--		--	
PESTICIDES AND HERBICIDES																			
Alachlor (Alanex)	EPA 505	ug/L	0.1	ND	UJ	ND		ND		ND		ND		--		--		--	
Aldrin (EPA Method 505)	EPA 505	ug/L	0.01	ND	UJ	ND		ND		ND		ND		--		--		--	
Chlordane	EPA 505	ug/L	0.1	ND	UJ	ND		ND		ND		ND		--		--		--	
Dieldrin (EPA Method 505)	EPA 505	ug/L	0.01	ND	UJ	ND		ND		ND		ND		--		--		--	
Endrin (EPA Method 505)	EPA 505	ug/L	0.01	ND	UJ	ND		ND		ND		ND		--		--		--	
Heptachlor (EPA Method 505)	EPA 505	ug/L	0.01	ND	UJ	ND		ND		ND		ND		--		--		--	
Heptachlor Epoxide	EPA 505	ug/L	0.01	ND	UJ	ND		ND		ND		ND		--		--		--	
Lindane (gamma-BHC)	EPA 505	ug/L	0.01	ND	UJ	ND		ND		ND		ND		--		--		--	
Methoxychlor (EPA Method 505)	EPA 505	ug/L	0.05	ND	UJ	ND		ND		ND		ND		--		--		--	
Toxaphene	EPA 505	ug/L	0.5	ND	UJ	ND		ND		ND		ND		--		--		--	
2,4,5-T	EPA 515.4	ug/L	0.2	ND		ND		ND		ND		ND		--		--		--	
2,4,5-TP (Silvex)	EPA 515.4	ug/L	0.2	ND		ND		ND		ND		ND		--		--		--	
2,4-D (EPA Method 515.4)	EPA 515.4	ug/L	5	ND		ND		ND		ND		ND		--		--		--	
2,4-DB	EPA 515.4	ug/L	2	ND		ND		ND		ND		ND		--		--		--	
3,5-Dichlorobenzoic acid	EPA 515.4	ug/L	0.5	ND		ND		ND		ND		ND		--		--		--	
Acifluorfen	EPA 515.4	ug/L	0.2	ND		ND		ND		ND		ND		--		--		--	
Bentazon	EPA 515.4	ug/L	0.5	ND		ND		ND		ND		ND		--		--		--	
Dicamba	EPA 515.4	ug/L	0.1	ND		ND		0.12		ND		ND		--		--		--	
Dalapon	EPA 515.4	ug/L	1	ND		ND		ND		ND		ND		--		--		--	
Dichlorprop	EPA 515.4	ug/L	0.5	ND		ND		ND		ND		ND		--		--		--	
Dinoseb	EPA 515.4	ug/L	0.2	ND		ND		ND		ND		ND		--		--		--	
Pentachlorophenol (EPA Method 515.4)	EPA 515.4	ug/L	0.04	ND		ND		ND		ND		ND		--		--		--	
Picloram	EPA 515.4	ug/L	0.1	ND		ND		ND		ND		ND		--		--		--	
Tot DCPA Mono&Diacid Degradate	EPA 515.4	ug/L	0.1	ND		ND		ND		ND		ND		--		--		--	
VOCs																			
1,1,1,2-Tetrachloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
1,1,1-Trichloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
1,1,2,2-Tetrachloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
1,1,2-Trichloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
1,1-Dichloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
1,1-Dichloroethylene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
1,1-Dichloropropene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
1,2,3-Trichlorobenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
1,2,3-Trichloropropane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
1,2,4-Trichlorobenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
1,2,4-Trimethylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichloropropane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
1,3,5-Trimethylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
1,3-Dichloropropane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
2,2-Dichloropropane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
2-Butanone (MEK)	EPA 524.2	ug/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
2-Hexanone	EPA 524.2	ug/L	10	ND		ND		ND		ND		ND		ND		ND		ND	
4-Methyl-2-Pentanone (MIBK)	EPA 524.2	ug/L	5	ND		ND		ND		ND		ND		ND		ND		ND	
Benzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Bromobenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Bromochloromethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Bromoethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Bromomethane (Methyl Bromide)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Chlorobenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Chloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Chloromethane(Methyl Chloride)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Dibromomethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Carbon disulfide	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Carbon Tetrachloride	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
cis-1,2-Dichloroethylene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
cis-1,3-Dichloropropene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Dichlorodifluoromethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	

				Martin Way Reclaimed Water Plant (MWRWP)													
				Sampling Event 1 (11/12/2014)										Sampling Event 2 (02/17/2015)			
				MWRWP-WASTEWATER		MWRWP-RECLAIMED		MWRWP-PRE-WETLANDS		MWRWP-POST-WETLANDS		DUP MWRWP-POST-WETLANDS		MWRWP-WASTEWATER		MWRWP-RECLAIMED		MWRWP-POST-WETLANDS	
ANALYTE	METHOD	UNIT	MRL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Dichloromethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Di-isopropyl ether	EPA 524.2	ug/L	3	ND		ND		ND		ND		ND		ND		ND		ND	
Ethyl benzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Hexachlorobutadiene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Isopropylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
m,p-Xylenes	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
m-Dichlorobenzene (1,3-DCB)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Methyl Tert-butyl ether (MTBE)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Naphthalene (EPA Method 524.2)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
n-Butylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
n-Propylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
o-Chlorotoluene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
o-Dichlorobenzene (1,2-DCB)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
o-Xylene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
p-Chlorotoluene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
p-Dichlorobenzene (1,4-DCB)	EPA 524.2	ug/L	0.5	0.59		ND		ND		ND		ND		ND		ND		ND	
p-Isopropyltoluene	EPA 524.2	ug/L	0.5	0.54		ND		ND		ND		ND		1.9		ND		ND	
sec-Butylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Styrene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
tert-amyl Methyl Ether	EPA 524.2	ug/L	3	ND		ND		ND		ND		ND		ND		ND		ND	
tert-Butyl Ethyl Ether	EPA 524.2	ug/L	3	ND		ND		ND		ND		ND		ND		ND		ND	
tert-Butylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Tetrachloroethylene (PCE)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Toluene	EPA 524.2	ug/L	0.5	8		ND		ND		ND		ND		14		ND		ND	
Total 1,3-Dichloropropene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Total xylenes	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
trans-1,2-Dichloroethylene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
trans-1,3-Dichloropropene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Trichloroethylene (TCE)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Trichlorofluoromethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Trichlorotrifluoroethane (Freon 113)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND		ND	
Vinyl chloride (VC)	EPA 524.2	ug/L	0.3	ND		ND		ND		ND		ND		ND		ND		ND	
SVOCS																			
2,4-Dinitrotoluene	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
2,6-Dinitrotoluene	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
4,4-DDD	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
4,4-DDE	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
4,4-DDT	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Acenaphthene	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Acenaphthylene	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Acetochlor	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Alachlor	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Aldrin (EPA Method 525.2)	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Alpha-BHC	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
alpha-Chlordane	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Anthracene	EPA 525.2	ug/L	0.02	ND (<0.04)		ND		ND		ND		ND		--		--		--	
Atrazine (EPA Method 525.2)	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Benz(a)Anthracene	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Benzo(a)pyrene	EPA 525.2	ug/L	0.02	ND (<0.04)		ND		ND		ND		ND		--		--		--	
Benzo(b)Fluoranthene	EPA 525.2	ug/L	0.02	ND (<0.04)		ND		ND		ND		ND		--		--		--	
Benzo(g,h,i)Perylene	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Benzo(k)Fluoranthene	EPA 525.2	ug/L	0.02	ND (<0.04)		ND		ND		ND		ND		--		--		--	
Beta-BHC	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Bromacil(EPA Method 525.2)	EPA 525.2	ug/L	0.2	ND (<0.4)		ND		ND		ND		ND		--		--		--	
Butachlor	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Butylbenzylphthalate	EPA 525.2	ug/L	0.5	ND (<1)		ND		ND		ND		ND		--		--		--	
Chlorobenzilate	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Chloroneb	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Chlorothalonil(Draconil,Bravo)	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Chlorpyrifos (Dursban)	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Chrysene	EPA 525.2	ug/L	0.02	ND (<0.04)		ND		ND		ND		ND		--		--		--	
Delta-BHC	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Di-(2-Ethylhexyl)adipate	EPA 525.2	ug/L	0.6	ND (<1.2)		ND		ND		ND		ND		--		--		--	
Di(2-Ethylhexyl)phthalate	EPA 525.2	ug/L	0.6	2.6	J+	ND		ND		ND		ND		--		--		--	
Diazinon (Qualitative)	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Dibenz(a,h)Anthracene	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Dichlorvos (DDVP)	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Dieldrin (EPA Method 525.2)	EPA 525.2	ug/L	0.01	ND (<0.02)		ND		ND		ND		ND		--		--		--	
Diethylphthalate	EPA 525.2	ug/L	0.5	6.6		ND		ND		ND		ND		--		--		--	
Dimethoate	EPA 525.2	ug/L	0.1	ND (<0.2)	UJ	ND		ND		ND		ND		--		--		--	
Dimethylphthalate	EPA 525.2	ug/L	0.5	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Di-n-Butylphthalate	EPA 525.2	ug/L	1	ND (<2)		ND		ND		ND		ND		--		--		--	
Di-N-octylphthalate	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Endosulfan I (Alpha)	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Endosulfan II (Beta)	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Endosulfan Sulfate	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Endrin (EPA Method 525.2)	EPA 525.2	ug/L	0.01	ND (<0.02)		ND		ND		ND		ND		--		--		--	
Endrin Aldehyde	EPA 525.2	ug/L	0.1	ND (<0.2)		ND	UJ	ND	UJ	ND		ND		--		--		--	
EPTC	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Fluoranthene	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Fluorene	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
gamma-Chlordane	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Heptachlor (EPA Method 525.2)	EPA 525.2	ug/L	0.01	ND (<0.02)		ND		ND		ND		ND		--		--		--	
Heptachlor Epoxide (isomer B)	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Hexachlorobenzene	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Hexachlorocyclopentadiene	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		0.072		ND		ND		--		--		--	
Indeno(1,2,3,c,d)Pyrene	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Isophorone	EPA 525.2	ug/L	0.5	ND (<1)		ND		ND		ND		ND		--		--		--	
Lindane	EPA 525.2	ug/L	0.04	ND (<0.08)		ND		ND		ND		ND		--		--		--	
Malathion	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Methoxychlor (EPA Method 525.2)	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Metolachlor	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Metribuzin	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Molinate	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Naphthalene (EPA Method 525.2)	EPA 525.2	ug/L	0.5	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Parathion	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Pendimethalin	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Pentachlorophenol (EPA Method 525.2)	EPA 525.2	ug/L	0.04	ND (<0.08)		ND		ND		ND		ND		--		--		--	
Permethrin (mixed isomers)	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Phenanthrene	EPA 525.2	ug/L	0.04	ND (<0.08)		ND		ND		ND		ND		--		--		--	
Propachlor	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Pyrene	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Simazine (EPA Method 525.2)	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Terbacil	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Terbuthylazine	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	
Thiobencarb	EPA 525.2	ug/L	0.2	ND (<0.4)		ND		ND		ND		ND		--		--		--	
Total PAH	EPA 525.2	ug/L	0.02	ND (<0.04)		ND		ND		ND		ND		--		--		--	
trans-Nonachlor	EPA 525.2	ug/L	0.05	ND (<0.1)		ND		ND		ND		ND		--		--		--	
Trifluralin	EPA 525.2	ug/L	0.1	ND (<0.2)		ND		ND		ND		ND		--		--		--	

MRL = Minimum Reporting Level; ND = Not Detected above MRL; "---" = Not Analyzed; Qual = Data Qualifier
ND (<#) = Not Detected and MRL is higher than the method MRL due to dilutions
mg/L = milligrams per liter (ppm); µg/L = micrograms per liter (ppb); ng/L = nanograms per liter (ppt)
µS/cm = microsiemens per centimeter; mV = millivolts
MPN/100ml = Most Probable Number (colony forming units) per 100 ml; PFU/100ml = Plaque Forming Units per 100 ml
PFC = Perfluorinated Compound; PBDE = Polybrominated Diphenyl Ether
DBP = Disinfection Byproduct; PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound; SVOC = Semivolatile Organic Compound
Notes:
1) Some analytes are listed twice as they were analyzed via multiple methods.
2) Data qualifiers:
J = Value is detected and the result is estimated.
J- = Value is detected and the result is estimated and biased low.
J+ = Value is detected and the result is estimated and biased high.
UJ = Result is a non-detect and the value is estimated.
R = Result rejected.

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				Martin Way Reclaimed Water Plant (MWRWP)													
				Sampling Event 3 (05/20/2015)						Sampling Event 4 (10/07/2015)							
				MWRWP-WASTEWATER		MWRWP-RECLAIMED		MWRWP-POST-WETLANDS		MWRWP-WASTEWATER		MWRWP-RECLAIMED		MWRWP-PRE-WETLANDS		MWRWP-POST-WETLANDS	
ANALYTE	METHOD	UNIT	MRL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
FIELD PARAMETERS																	
pH		units	N/A	7.62		7.03		7.01		7.62		7.21		7.15		6.78	
Temperature		˚C	N/A	17.9		20.3		17.1		19.2		19.9		20.3		15.2	
Specific Conductance		µS/cm	N/A	922		532		508		802		761.5		532.6		540.4	
Oxidation Reduction Potential (ORP)		mV	N/A	76		365		163		10.9		346.6		254		124.4	
Dissolved Oxygen		mg/L	N/A	1.9		4.2		9.3		3.74		5.35		5.03		1.73	
Free Cl		mg/L	N/A							0		0.2		0		0	
Total Cl		mg/L	N/A							0		0.6		0.4		0	
LABORATORY GENERAL WATER QUALITY PARAMETERS																	
Alkalinity	SM 2320B	mg/L	2	330		120		120		270		120		120		140	
Alkalinity (as HCO3, calc)	SM2330B	mg/L	2	400		150		150		320		150		150		160	
Carbonate	SM2330B	mg/L	2	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Hydroxide	SM2330B	mg/L	2	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Carbon Dioxide	SM4500-CO2-D	mg/L	2	21		4.9		3.9		*ND*		*ND*		*ND*		*ND*	
Specific Conductance	SM2510B	umho/cm	2	960		540		500		800		530		520		540	
Turbidity	Default	NTU	0	0.99		0.99		0.99		0.99		0.99		0.99		0.99	
WASTEWATER/RECLAIMED WATER PARAMETERS																	
Total Suspended Solids	SM 2540D	mg/L	10	180		*ND*		*ND*		180		*ND*		*ND*		*ND*	
Total Dissolved Solid	E160.1/SM2540C	mg/L	10	370		350		320		330		340		330		340	
Total Organic Carbon	SM5310C/E415.3	mg/L	0.3	93		6.4		6.4		110		5		5		5.3	
Chemical Oxygen Demand	EPA 410.4	mg/L	5	550		13		14		120		12		11		11	
Dissolved Organic Carbon - Final	Allgeier, 1996	mg/L	0.3	28		6.7		9.2		28		4.6	J+	6.8		5.3	
Dissolved Organic Carbon - Initial	Allgeier, 1996	mg/L	0.3	42		6.5	J+	6.6	J+	56		5.1	J+	5.2	J+	4.9	J+
Biochemical Oxygen Demand	SM5210B 405.1	mg/L	3	260		*ND*		*ND*		220	J	*ND*		*ND*		*ND*	
Biodegradable Dissolved Organic Carbon	Allgeier, 1996	mg/L	0.3	*ND (<1.5)*		*ND (<0.6)*		2.7		27		0.5		*ND*		*ND*	
Bromide	EPA 300.0	ug/L	5	88		45		54		58		41		31		44	
Chloride	EPA 300.0	mg/L	1	55		53		54		43		49		50		54	
Fluoride	SM 4500F-C	mg/L	0.05	0.084		0.1		0.1		0.071		0.071		0.073		0.085	
Sulfate	EPA 300.0	mg/L	0.5	25		28		25		23		28		27		28	
SulfideTotal	SM4500SD/376.2	mg/L	0.05	0.12		*ND*		*ND*		0.23		*ND*		*ND*		*ND*	
Sulfur Total ICAP	EPA 200.7	mg/L	0.1	23		--		--		130		--		--		--	
Total Hardness as CaCO3 by ICP (calc)	SM 2340B	mg/L	3	120		--		--		120		--		--		--	
Total Chlorine	SM 4500-CL G	mg/L	0.1	*ND*		0.74	J-	*ND*		1.5		0.37		0.4		0.13	
Free Chlorine	SM 4500CL-G/HACH	mg/L	0.1	*ND*		*ND*		*ND*		1.1		*ND*		*ND*		*ND*	
Chloramines	SM 4500CL-G/HACH	mg/L	0.1	*ND*	*UJ*	0.68	J-	*ND*	*UJ*	0.4		0.32		0.32		*ND*	
Anion Sum - Calculated	SM 1030E	meq/L	0.001	8.7		4.9		4.6		7		4.9		4.8		5	
Cation Sum - Calculated	SM 1030E	meq/L	0.001	5.3		--		--		--		5.3		4.8		5.1	
Cation Sum - Manual Calculation	SM 1030E	%	0	--		--		--		--		4		*ND*		1	
Cation/Anion Difference	SM 1030E	%	0	4.3		--		--		7.4		--		--		--	
Cation Balance with NH3		meq/L	0	9.5		--		--		8.2		--		--		--	
PATHOGENS																	
Total Coliform	SM 9222B	MPN/100 mL	1	>2419600		*ND*		41		>2419.6		3		*ND*		>2419.6	
Fecal Coliform	SM 9222D	MPN/100 mL	1	--		*ND*		--		--		--		--		--	
Fecal Coliform	SM 9222D	CFU/mL	1	>2419600	J	--		41	J	>2000		*ND*		*ND*		15	
Cryptosporidium	EPA 1623	oocysts/L	NA	--		--		--		*ND*		*ND*		*ND*		*ND*	
Giardia	EPA 1623	Organism/L	NA	--		--		--		--		--		--		--	
Somatic coliphage titer	FRS9#28 1602	P/100mL	1	160000		<1		<1		1200000		<1		<1		140	
Male-specific coliphage titer	FRS9#28 1602	P/100mL	1	130000		<1		<1		110000		<1		<1		<1	
NUTRIENTS																	
Nitrate (as Nitrogen)	EPA 300.0	mg/L	0.1	*ND (<0.2)*		5.4		1.2		*ND (<0.2)*		7.5		5.4		3	
Nitrite	EPA 300.0	mg/L	0.05	*ND (<0.1)*		*ND*		*ND*		*ND (<0.1)*		*ND*		*ND*		*ND (<0.1)*	
Nitrate+Nitrite	EPA 300.0	mg/L	0.1	*ND (<0.2)*		5.4		1.2		*ND (<0.2)*		7.5		5.4		3	
Ammonia Nitrogen	EPA 350.1	mg/L	0.05	59		0.33		*ND*		44		*ND*		*ND*		0.1	
Kjeldahl Nitrogen	EPA 351.2	mg/L	0.2	80		1.4		0.86		80		1.1		0.97	J	1	
Total Nitrogen	EPA 353-351	mg/L	0.2	80		6.8		2.1		80		8.6		6.4		4	
Dissolved Orthophosphate (as P)	4500P-E/365.1	mg/L	0.01	5.2		3		3.6		4.3		3.5		3.1		3.8	J-
Dissolved Total Phosphorus	SM4500-PE/EPA 365.1	mg/L	0.4	6		3.2		3.7		4.4		3.5		3.2		3.8	
Orthophosphate (as P)	4500P-E/365.1	mg/L	0.01	6.1		3		3.6		4.5		3.1		2.9		3.7	J-
Total Phosphorus	SM4500-PE/EPA 365.1	mg/L	0.02	9.9		3.2		3.8		9		3.8		3.1		3.8	
METALS (DISSOLVED)																	
Aluminum	EPA 200.8	ug/L	20	25		*ND*		*ND*		*ND (<100)*		*ND*		*ND*		*ND*	
Antimony	EPA 200.8	ug/L	1	*ND*		*ND*		*ND*		*ND (<5)*		*ND*		*ND*		*ND*	
Arsenic	EPA 200.8	ug/L	1	*ND*		*ND*		*ND*		*ND (<5)*		*ND*		*ND*		*ND*	
Barium	EPA 200.8	ug/L	2	7		7.4		8.3		*ND (<10)*		9.2		7.5		6.6	
Beryllium	EPA 200.8	ug/L	1	*ND*		*ND*		*ND*		*ND (<5)*		*ND*		*ND*		*ND*	
Boron	EPA 200.7	mg/L	0.05	0.15		0.25		0.22		0.21		0.23		0.21		0.22	
Cadmium	EPA 200.8	ug/L	0.5	*ND*		*ND*		*ND*		*ND (<2.5)*		*ND*		*ND*		*ND*	
Calcium	EPA 200.7	mg/L	1	27		31		26		24		34		30		32	
Chromium	EPA 200.8	ug/L	1	*ND*		*ND*		*ND*		*ND (<5)*		*ND*		*ND*		*ND*	
Copper	EPA 200.8	ug/L	2	19		6.2		2.2		*ND (<10)*		7.6		5.4		2.6	
Iron	EPA 200.7	mg/L	0.02	0.048		*ND*		0.028		0.06		0.028		0.026		*ND*	
Lead	EPA 200.8	ug/L	0.5	*ND*		*ND*		*ND*		*ND (<2.5)*		*ND*		*ND*		*ND*	
Magnesium	EPA 200.7	mg/L	0.1	9.2		9		8.6		8.7		10		9		9.6	
Manganese	EPA 200.8	ug/L	2	18		13		9		16		40		9.2		8	
Mercury	EPA 245.1	ug/L	0.2	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Potassium	EPA 200.7	mg/L	1	17		15		12		15		17		15		16	
Selenium	EPA 200.8	ug/L	5	*ND*		*ND*		*ND*		*ND (< 25)*		*ND*		*ND*		*ND*	
Silica	EPA 200.7	mg/L	0.5	39		43		25		40		45		42		39	
Silicon	EPA 200.7	mg/L	0.2	18		20		12		19		21		20		18	
Silver	EPA 200.8	ug/L	0.5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Sodium	EPA 200.7	mg/L	1	51		57		52		46		54		51		54	
Thallium	EPA 200.8	ug/L	1	*ND*		*ND*		*ND*		*ND (<5)*		*ND*		*ND*		*ND*	
Zinc	EPA 200.8	ug/L	20	37		93		58		*ND (<100)*		73		98		59	
METALS (TOTAL)																	
Aluminum	EPA 200.8	ug/L	20	150		--		--		350		--		--		--	
Antimony	EPA 200.8	ug/L	1	*ND*		--		--		*ND*		--		--		--	
Arsenic	EPA 200.8	ug/L	1	1.2		--		--		1.1		--		--		--	
Barium	EPA 200.8	ug/L	2	41		--		--		22		--		--		--	
Beryllium	EPA 200.8	ug/L	1	*ND*		--		--		*ND*		--		--		--	
Boron	EPA 200.7	mg/L	0.05	0.16		--		--		0.26		--		--		--	
Cadmium	EPA 200.8	ug/L	0.5	*ND*		--		--		*ND*		--		--		--	
Calcium	EPA 200.7	mg/L	1	33		--		--		30		--		--		--	
Chromium	EPA 200.8	ug/L	1	*ND*		--		--		*ND*		--		--		--	
Copper	EPA 200.8	ug/L	2	79		--		--		73		--		--		--	
Iron	EPA 200.7	mg/L	0.02	0.32		--		--		0.49		--		--		--	
Lead	EPA 200.8	ug/L	0.5	0.96		--		--		1.5		--		--		--	
Magnesium	EPA 200.7	mg/L	0.1	10		--		--		10		--		--		--	
Manganese	EPA 200.8	ug/L	2	26		--		--		62		--		--		--	
Mercury	EPA 245.1	ug/L	0.2	*ND*		--		--		*ND*		--		--		--	
Nickel	EPA 200.8	ug/L	5	*ND*		--		--		*ND*		--		--		--	
Potassium	EPA 200.7	mg/L	1	18		--		--		17		--		--		--	
Selenium	EPA 200.8	ug/L	5	*ND*		--		--		*ND*		--		--		--	
Silica	EPA 200.7	mg/L	0.5	41		--		--		44		--		--		--	
Silver	EPA 200.8	ug/L	0.5	*ND*		--		--		*ND*		--		--		--	
Sodium	EPA 200.7	mg/L	1	54		--		--		52		--		--		--	
Thallium	EPA 200.8	ug/L	1	*ND*		--		--		*ND*		--		--		--	
Zinc	EPA 200.8	ug/L	20	87		--		--		150		--		--		--	
RESIDUAL CHEMICALS																	
N-Nitroso dimethylamine (NDMA)	EPA 521	ng/L	2	*ND*	*UJ*	*ND*		*ND*		11		--		3		2.8	
1,4-Dioxane	EPA 522	ug/L	0.07	0.38		0.73		0.6		0.44		0.71		0.78		0.55	J+
1,7-Dimethylxanthine	LC-MS-MS	ng/L	10	410		*ND*		*ND*		660		*ND*		*ND*		*ND*	
2,4-D (Method LC-MS-MS)	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		23		16		22		56	
4-n-Octylphenol diethoxylate	LC-MS-MS-WW	ng/L	100	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
4-n-Octylphenol monoethoxylate	LC-MS-MS-WW	ng/L	100	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	*UJ*
4-nonylphenol - semi quantitative	LC-MS-MS	ng/L	100	1200	J	670	J	*ND*	*UJ*	*ND*	*UJ*	110	J	180	J	*ND*	*UJ*
4-para-Nonylphenol	LC-MS-MS-WW	ng/L	100	--		--		--		--		--		--		--	
4-tert-octylphenol	LC-MS-MS	ng/L	50	230		*ND*		*ND*		*ND*		73		130		55	J
Acesulfame-K	LC-MS-MS	ng/L	20	57000		830		410		300000		180		190		260	
Acetaminophen	LC-MS-MS	ng/L	5	98000		*ND*		*ND*		--		*ND*		*ND*		*ND*	
Albuterol	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Amoxicillin (semi-quantitative)	LC-MS-MS	ng/L	20	6200	J	*ND*	*UJ*	*ND*	*UJ*	10000	J	*ND*	*UJ*	*ND*	*UJ*	*ND*	*UJ*
Androstenedione	LC-MS-MS	ng/L	5	850		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Atenolol	LC-MS-MS	ng/L	5	3200		75		18		1500	J	62	J	44	J	25	J
Atrazine (Method LC-MS-MS)	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Azithromycin	LC-MS-MS	ng/L	20	210	J	*ND*	*UJ*	*ND*	*UJ*	440	J	*ND*	*UJ*	*ND*	*UJ*	*ND*	*UJ*
Bendroflumethiazide	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Bezafibrate	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Bisphenol A	LC-MS-MS-WW	ng/L	100	*ND*		*ND*		*ND*		--		--		--		--	
BPA (Bisphenol A, low detection limit)	LC-MS-MS	ng/L	10	140		*ND*		*ND*		160		*ND*		*ND*		*ND*	
Bromacil (Method LC-MS-MS)	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Butalbital	LC-MS-MS	ng/L	5	17		9.8		8.8		*ND*		9.5		8.1		9.7	
Butylparben	LC-MS-MS	ng/L	5	23		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Caffeine	LC-MS-MS	ng/L	5	50000		*ND*		*ND*		75000		*ND*		*ND*		*ND*	
Carbadox	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Carbamazepine	LC-MS-MS	ng/L	5	490		240		240		230		190		210		170	
Carisoprodol	LC-MS-MS	ng/L	5	*ND*		*ND*		17		*ND*		*ND*		*ND*		*ND*	
Chloridazon	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Chloramphenicol	LC-MS-MS	ng/L	10	*ND*		*ND*		*ND*		440		*ND*		*ND*		*ND*	*UJ*
Chlorotoluron	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Cimetidine	LC-MS-MS	ng/L	5	420	J	*ND*	*UJ*	*ND*	*UJ*	120	J	*ND*	*UJ*	*ND*	*UJ*	*ND*	*UJ*
Clofibric Acid	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Cotinine	LC-MS-MS	ng/L	10	5200		54		45		1800		13		*ND*		*ND*	
Cyanazine	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
DACT	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
DEA	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
DEET	LC-MS-MS	ng/L	10	370		41		25		390		*ND*		*ND*		15	
Dehydronifedipine	LC-MS-MS	ng/L	5	*ND*		8.7		*ND*		*ND*		*ND*		*ND*		*ND*	
DIA	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Diazepam	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Diclofenac	LC-MS-MS	ng/L	5	*ND*		55		*ND*		180		9.6		*ND*		16	
Diuron	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Dilantin	LC-MS-MS	ng/L	20	690		120		*ND*		*ND*		*ND*		*ND*		*ND*	
Diltiazem	LC-MS-MS	ng/L	5	73		5.6		*ND*		32		*ND*		*ND*		*ND*	
Erythromycin	LC-MS-MS	ng/L	10	270		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Estradiol - 17 beta	LC-MS-MS	ng/L	5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Estradiol - 17 beta (low detection)	LC-MS-MS-WW	ng/L	0.5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Estrone	LC-MS-MS	ng/L	0.5	44		*ND*		*ND*		32		*ND*		*ND*		*ND*	
Estrone (low detection)	LC-MS-MS-WW	ng/L	0.5	1.1		*ND*		1.9		20		*ND*		*ND*		*ND*	
Ethinyl Estradiol - 17 alpha	LC-MS-MS	ng/L	5	19		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Ethinyl Estradiol - 17 alpha (low detection)	LC-MS-MS-WW	ng/L	0.5	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	
Ethylparaben	LC-MS-MS	ng/L	20	200		*ND*		*ND*		160		*ND*		*ND*		*ND*	
Flumeqine	LC-MS-MS	ng/L	10	*ND*		*ND*		*ND*		*ND*		*ND*		*ND*		*ND*	

				Martin Way Reclaimed Water Plant (MWRWP)													
				Sampling Event 3 (05/20/2015)						Sampling Event 4 (10/07/2015)							
				MWRWP-WASTEWATER		MWRWP-RECLAIMED		MWRWP-POST-WETLANDS		MWRWP-WASTEWATER		MWRWP-RECLAIMED		MWRWP-PRE-WETLANDS		MWRWP-POST-WETLANDS	
ANALYTE	METHOD	UNIT	MRL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Fluoxetine	LC-MS-MS	ng/L	10	48		26		ND		85		35		36		15	
Gemfibrozil	LC-MS-MS	ng/L	5	7100		130		13		14000		19		ND		12	
Ibuprofen	LC-MS-MS	ng/L	10	ND		ND		ND		2900		25		20		27	
Iohexal	LC-MS-MS	ng/L	10	2600		860		420		13000		270		230		130	
Iopromide	LC-MS-MS	ng/L	5	7.6		23		41		12000		510		540		170	
Isobutylparaben	LC-MS-MS	ng/L	5	ND		ND		ND		3500		ND		ND		ND	
Isoproturon	LC-MS-MS	ng/L	100	ND		ND		ND		ND		ND		ND		ND	
Ketoprofen	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND	
Ketorolac	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND	
Lidocaine	LC-MS-MS	ng/L	5	220		73		9.4		180		12		ND		ND	
Lincomycin	LC-MS-MS	ng/L	10	ND		ND		ND		ND		ND		ND		ND	
Linuron	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND	
Lopressor	LC-MS-MS	ng/L	20	1100		190		82		ND		290		310		140	
Meclofenamic Acid	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND	
Meprobamate	LC-MS-MS	ng/L	5	ND		ND		ND		ND		17		9.5		11	
Metazachlor	LC-MS-MS	ng/L	5	ND	R	ND	R	ND	R	ND	R	ND	R	ND	R	ND	R
Metformin	LC-MS-MS	ng/L	10	220000		2600		830		180000		2200		1100		1500	
Methylparaben	LC-MS-MS	ng/L	20	ND		ND		ND		74		ND		21		ND	
Naproxen	LC-MS-MS	ng/L	10	460		32		ND		69000		ND		ND		ND	
Nifedipine	LC-MS-MS	ng/L	20	ND	UJ	ND	UJ	ND	UJ	ND	UJ	ND	UJ	ND	UJ	ND	UJ
Nonylphenol Diethoxylate	LC-MS-MS-WW	ng/L	100	ND		ND		ND		ND		ND		ND		ND	
Nonylphenol Monoethoxylate	LC-MS-MS-WW	ng/L	100	ND		ND		ND		ND		ND		ND		ND	
Norethisterone	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND	
Octylphenol	LC-MS-MS-WW	ng/L	100	--		--		--		--		--		--		--	
Oxolinic acid	LC-MS-MS	ng/L	10	ND		ND		ND		ND		ND		ND		ND	
Pentoxifylline	LC-MS-MS	ng/L	5	ND		ND		ND		210		ND		ND		ND	
Phenazone	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND	
Primidone	LC-MS-MS	ng/L	5	220		130		150		170		170		170		170	
Progesterone	LC-MS-MS	ng/L	5	120		ND		ND		ND		ND		ND		ND	
Propazine	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND	
Propylparaben	LC-MS-MS	ng/L	5	880		ND		ND		170		ND		ND		ND	
Quinoline	LC-MS-MS	ng/L	5	140		28		24		250		ND		ND		ND	
Simazine (Method LC-MS-MS)	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND	
Sucralose	LC-MS-MS	ng/L	100	89000		68000		72000		410000		50000		46000		68000	J-
Sulfachloropyridazine	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND	
Sulfadiazine	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND	
Sulfadimethoxine	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND	
Sulfamerazine	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND	
Sulfamethazine	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND	
Sulfamethizole	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND	
Sulfamethoxazole	LC-MS-MS	ng/L	5	1600		ND		ND		1800		87		22		42	
Sulfathiazole	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND	
TCEP	LC-MS-MS	ng/L	10	ND		130		240		ND		120		150		160	
TCPP	LC-MS-MS	ng/L	100	740		200		260		1100		270		350		300	
TDCPP	LC-MS-MS	ng/L	100	ND		ND		ND		510	J	130		130		170	J
Theobromine	LC-MS-MS	ng/L	10	19000		ND		ND		710		ND		ND		ND	
Thiabendazole	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND	
Testosterone	LC-MS-MS	ng/L	5	ND		ND		ND		ND		ND		ND		ND	
Triclocarban	LC-MS-MS	ng/L	5	ND		ND		ND		110		ND		ND		ND	
Triclosan	LC-MS-MS	ng/L	10	480		13		ND		1500		ND		ND		ND	
Trimethoprim	LC-MS-MS	ng/L	5	720		13		ND		390		ND		ND		ND	
Warfarin	LC-MS-MS	ng/L	5	ND		ND		ND		18		ND		ND		ND	
PFCs																	
Perfluoro butanoic acid- PFBA	MWH PFC	ng/L	10	ND		ND		ND		ND		ND		ND		ND	UJ
Perfluoro octanesulfonate-PFOS	MWH PFC	ng/L	5	ND		ND		ND		ND		ND		ND		ND	UJ
Perfluoro octanesulfonic acid - PFOS	MWH PFC	ng/L	5	ND		ND		ND		ND		ND		ND		ND	UJ
Perfluoro octanoic acid - PFOA	MWH PFC	ng/L	5	ND		ND		ND		ND		16		18		22	J-
Perfluoro-1-butanesulfonate	MWH PFC	ng/L	5	ND		ND		ND		ND		7.3		7.9		12	J-
Perfluoro-1-butanesulfonic acid	MWH PFC	ng/L	5	ND		ND		ND		ND		9.6		8.6		12	J-
Perfluoro-1-hexanesulfonate	MWH PFC	ng/L	5	ND		ND		ND		ND		ND		ND		ND	UJ
Perfluoro-1-hexanesulfonic acid	MWH PFC	ng/L	5	ND		ND		ND		ND		ND		ND		ND	UJ
Perfluoro-n-decanoic acid	MWH PFC	ng/L	5	ND		ND		ND		ND		ND		ND		ND	UJ
Perfluoro-n-heptanoic acid	MWH PFC	ng/L	5	ND		ND		ND		ND		ND		ND		ND	UJ
Perfluoro-n-hexanoic acid	MWH PFC	ng/L	5	ND		18		11		12		46		53		68	J-
Perfluoro-n-nonanoic acid	MWH PFC	ng/L	5	ND		ND		ND		ND		ND		ND		ND	UJ
Perfluoropentanoic acid	MWH PFC	ng/L	5	7.1		31		17		--		79		79		93	J-
PBDEs/EDB/DBCP																	
BDE-100	GC-QQQ PBDE	ng/L	5	ND	UJ	ND		ND		ND		ND		ND		ND	
BDE-153	GC-QQQ PBDE	ng/L	5	ND	UJ	ND		ND		ND		ND		ND		ND	
BDE-154	GC-QQQ PBDE	ng/L	5	ND	UJ	ND		ND		ND		ND		ND		ND	
BDE-183	GC-QQQ PBDE	ng/L	5	ND	UJ	ND		ND		ND		ND		ND		ND	
BDE-209	GC-QQQ PBDE	ng/L	100	ND	UJ	ND	UJ	ND	UJ	ND		ND		ND		ND	
BDE-28	GC-QQQ PBDE	ng/L	5	ND	UJ	ND		ND		ND		ND		ND		ND	
BDE-47	GC-QQQ PBDE	ng/L	5	5.3	J-	ND		ND		5.8	J-	ND		ND		ND	
BDE-99	GC-QQQ PBDE	ng/L	5	5.5	J-	ND		ND		ND		ND		ND		ND	
Bifenthrin	GC-QQQ PBDE	ng/L	5	ND	UJ	ND		ND		ND		ND		ND		ND	
cis-Permethrin	GC-QQQ PBDE	ng/L	5	28	J-	ND		ND		ND		ND		ND		ND	
Fipronil	GC-QQQ PBDE	ng/L	2	2.9	J-	36		2.5		ND		ND		ND		ND	
Total Permethrin	GC-QQQ PBDE	ng/L	10	65	J-	ND		ND		ND		ND		ND		ND	
trans-Permethrin	GC-QQQ PBDE	ng/L	5	37	J-	ND		ND		ND		ND		ND		ND	
Dibromochloropropane (DBCP)	EPA 551.1	ug/L	0.01	ND		ND		ND		ND		ND		ND		ND	
Ethylene Dibromide (EDB)	EPA 551.1	ug/L	0.01	ND		ND		ND		ND		ND		ND		ND	
DBPs																	
Chloroform (Trichloromethane)	EPA 524.2	ug/L	0.5	1.1		12	J+	5.7	J+	2.2		16		35		22	
Bromoform	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Bromodichloromethane	EPA 524.2	ug/L	0.5	ND		2.7		0.82		0.68		4.6		9.8		3.4	
Chlorodibromomethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		0.58		1		ND	
Total Trihalomethanes (TTHM)	EPA 524.2	ug/L	0.5	1.1		15		6.5		2.9		21		46		25	
Bromochloroacetic acid	SM 6251B	ug/L	1	ND		2.4		ND		ND		2.5		3		ND	
Dibromoacetic acid	SM 6251B	ug/L	1	ND		ND		ND		ND		ND		ND		ND	
Dichloroacetic acid	SM 6251B	ug/L	1	3		15		ND		2.4		16		19		ND	
Monobromoacetic acid	SM 6251B	ug/L	1	ND		ND		ND		ND		ND		ND		ND	
Monochloroacetic acid	SM 6251B	ug/L	2	ND		ND		ND		ND		ND		2.5		ND	
Total Haloacetic Acids (HAA5)	SM 6251B	ug/L	2	7.9		32		ND		7		38		52		ND	
Trichloroacetic acid	SM 6251B	ug/L	1	4.9		17		ND		4.6		22		30		ND	
PCBs																	
PCB 1016 Aroclor	EPA 505	ug/L	0.08	--		--		--		ND	UJ	ND		ND		ND	
PCB 1221 Aroclor	EPA 505	ug/L	0.1	--		--		--		ND	UJ	ND		ND		ND	
PCB 1232 Aroclor	EPA 505	ug/L	0.1	--		--		--		ND	UJ	ND		ND		ND	
PCB 1242 Aroclor	EPA 505	ug/L	0.1	--		--		--		ND	UJ	ND		ND		ND	
PCB 1248 Aroclor	EPA 505	ug/L	0.1	--		--		--		ND	UJ	ND		ND		ND	
PCB 1254 Aroclor	EPA 505	ug/L	0.1	--		--		--		ND	UJ	ND		ND		ND	
PCB 1260 Aroclor	EPA 505	ug/L	0.1	--		--		--		ND	UJ	ND		ND		ND	
Total PCBs	EPA 505	ug/L	0.1	--		--		--		ND	UJ	ND		ND		ND	
PESTICIDES AND HERBICIDES																	
Alachlor (Alanex)	EPA 505	ug/L	0.1	--		--		--		ND	UJ	ND		ND		ND	
Aldrin (EPA Method 505)	EPA 505	ug/L	0.01	--		--		--		ND	UJ	ND		ND		ND	
Chlordane	EPA 505	ug/L	0.1	--		--		--		ND	UJ	ND		ND		ND	
Dieldrin (EPA Method 505)	EPA 505	ug/L	0.01	--		--		--		ND	UJ	ND		ND		ND	
Endrin (EPA Method 505)	EPA 505	ug/L	0.01	--		--		--		ND	UJ	ND		ND		ND	
Heptachlor (EPA Method 505)	EPA 505	ug/L	0.01	--		--		--		ND	UJ	ND		ND		ND	
Heptachlor Epoxide	EPA 505	ug/L	0.01	--		--		--		ND	UJ	ND		ND		ND	
Lindane (gamma-BHC)	EPA 505	ug/L	0.01	--		--		--		ND	UJ	ND		ND		ND	
Methoxychlor (EPA Method 505)	EPA 505	ug/L	0.05	--		--		--		ND	UJ	ND		ND		ND	
Toxaphene	EPA 505	ug/L	0.5	--		--		--		ND	UJ	ND		ND		ND	
2,4,5-T	EPA 515.4	ug/L	0.2	--		--		--		ND		ND		ND		ND	
2,4,5-TP (Silvex)	EPA 515.4	ug/L	0.2	--		--		--		ND		ND		ND		ND	
2,4-D (EPA Method 515.4)	EPA 515.4	ug/L	5	--		--		--		ND		ND		ND		ND	
2,4-DB	EPA 515.4	ug/L	2	--		--		--		ND		ND		ND		ND	
3,5-Dichlorobenzoic acid	EPA 515.4	ug/L	0.5	--		--		--		ND		ND		ND		ND	
Acifluorfen	EPA 515.4	ug/L	0.2	--		--		--		ND		ND		ND		ND	
Bentazon	EPA 515.4	ug/L	0.5	--		--		--		ND		ND		ND		ND	
Dicamba	EPA 515.4	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Dalapon	EPA 515.4	ug/L	1	--		--		--		ND		1.8		ND		ND	
Dichlorprop	EPA 515.4	ug/L	0.5	--		--		--		ND		ND		ND		ND	
Dinoseb	EPA 515.4	ug/L	0.2	--		--		--		ND		ND		ND		ND	
Pentachlorophenol (EPA Method 515.4)	EPA 515.4	ug/L	0.04	--		--		--		ND		ND		ND		ND	
Picloram	EPA 515.4	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Tot DCPA Mono&Diacid Degradate	EPA 515.4	ug/L	0.1	--		--		--		ND		ND		ND		ND	
VOCs																	
1,1,1,2-Tetrachloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
1,1,1-Trichloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
1,1,2,2-Tetrachloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
1,1,2-Trichloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
1,1-Dichloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
1,1-Dichloroethylene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
1,1-Dichloropropene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
1,2,3-Trichlorobenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
1,2,3-Trichloropropane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
1,2,4-Trichlorobenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
1,2,4-Trimethylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
1,2-Dichloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
1,2-Dichloropropane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
1,3,5-Trimethylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
1,3-Dichloropropane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
2,2-Dichloropropane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
2-Butanone (MEK)	EPA 524.2	ug/L	5	ND		ND		ND		ND		ND		ND		ND	
2-Hexanone	EPA 524.2	ug/L	10	ND		ND		ND		ND		ND		ND		ND	
4-Methyl-2-Pentanone (MIBK)	EPA 524.2	ug/L	5	ND		ND		ND		ND		ND		ND		ND	
Benzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Bromobenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Bromochloromethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Bromoethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Bromomethane (Methyl Bromide)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Chlorobenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Chloroethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Chloromethane(Methyl Chloride)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Dibromomethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Carbon disulfide	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Carbon Tetrachloride	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
cis-1,2-Dichloroethylene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
cis-1,3-Dichloropropene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Dichlorodifluoromethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	

				Martin Way Reclaimed Water Plant (MWRWP)											
				Sampling Event 3 (05/20/2015)						Sampling Event 4 (10/07/2015)					
				MWRWP-WASTEWATER		MWRWP-RECLAIMED		MWRWP-POST-WETLANDS		MWRWP-WASTEWATER		MWRWP-RECLAIMED		MWRWP-PRE-WETLANDS		MWRWP-POST-WETLANDS	
ANALYTE	METHOD	UNIT	MRL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Dichloromethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Di-isopropyl ether	EPA 524.2	ug/L	3	ND		ND		ND		ND		ND		ND		ND	
Ethyl benzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Hexachlorobutadiene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Isopropylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
m,p-Xylenes	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
m-Dichlorobenzene (1,3-DCB)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Methyl Tert-butyl ether (MTBE)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Naphthalene (EPA Method 524.2)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
n-Butylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
n-Propylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
o-Chlorotoluene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
o-Dichlorobenzene (1,2-DCB)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
o-Xylene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
p-Chlorotoluene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
p-Dichlorobenzene (1,4-DCB)	EPA 524.2	ug/L	0.5	0.52		ND		ND		ND		ND		ND		ND	
p-Isopropyltoluene	EPA 524.2	ug/L	0.5	1.7		ND		ND		1.6		ND		ND		ND	
sec-Butylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Styrene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
tert-amyl Methyl Ether	EPA 524.2	ug/L	3	ND		ND		ND		ND		ND		ND		ND	
tert-Butyl Ethyl Ether	EPA 524.2	ug/L	3	ND		ND		ND		ND		ND		ND		ND	
tert-Butylbenzene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Tetrachloroethylene (PCE)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Toluene	EPA 524.2	ug/L	0.5	16		ND		ND		5.8		ND		ND		ND	
Total 1,3-Dichloropropene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Total xylenes	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
trans-1,2-Dichloroethylene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
trans-1,3-Dichloropropene	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Trichloroethylene (TCE)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Trichlorofluoromethane	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Trichlorotrifluoroethane (Freon 113)	EPA 524.2	ug/L	0.5	ND		ND		ND		ND		ND		ND		ND	
Vinyl chloride (VC)	EPA 524.2	ug/L	0.3	ND		ND		ND		ND		ND		ND		ND	
SVOCS																	
2,4-Dinitrotoluene	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
2,6-Dinitrotoluene	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
4,4-DDD	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
4,4-DDE	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
4,4-DDT	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Acenaphthene	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Acenaphthylene	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Acetochlor	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Alachlor	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Aldrin (EPA Method 525.2)	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Alpha-BHC	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
alpha-Chlordane	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Anthracene	EPA 525.2	ug/L	0.02	--		--		--		ND		ND		ND		ND	
Atrazine (EPA Method 525.2)	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Benz(a)Anthracene	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Benzo(a)pyrene	EPA 525.2	ug/L	0.02	--		--		--		ND		ND		ND		ND	
Benzo(b)Fluoranthene	EPA 525.2	ug/L	0.02	--		--		--		ND		ND		ND		ND	
Benzo(g,h,i)Perylene	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Benzo(k)Fluoranthene	EPA 525.2	ug/L	0.02	--		--		--		ND		ND		ND		ND	
Beta-BHC	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Bromacil(EPA Method 525.2)	EPA 525.2	ug/L	0.2	--		--		--		ND		ND		ND		ND	
Butachlor	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Butylbenzylphthalate	EPA 525.2	ug/L	0.5	--		--		--		1.4		ND		ND		ND	
Chlorobenzilate	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Chloroneb	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Chlorothalonil(Draconil,Bravo)	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Chlorpyrifos (Dursban)	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Chrysene	EPA 525.2	ug/L	0.02	--		--		--		ND		ND		ND		ND	
Delta-BHC	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Di-(2-Ethylhexyl)adipate	EPA 525.2	ug/L	0.6	--		--		--		ND		ND		ND		ND	
Di(2-Ethylhexyl)phthalate	EPA 525.2	ug/L	0.6	--		--		--		1.3		ND		ND		ND	
Diazinon (Qualitative)	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Dibenz(a,h)Anthracene	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Dichlorvos (DDVP)	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Dieldrin (EPA Method 525.2)	EPA 525.2	ug/L	0.01	--		--		--		ND		ND		ND		ND	
Diethylphthalate	EPA 525.2	ug/L	0.5	--		--		--		5.6		ND		ND		ND	
Dimethoate	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Dimethylphthalate	EPA 525.2	ug/L	0.5	--		--		--		ND		ND		ND		ND	
Di-n-Butylphthalate	EPA 525.2	ug/L	1	--		--		--		3.3		ND		ND		ND	
Di-N-octylphthalate	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Endosulfan I (Alpha)	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Endosulfan II (Beta)	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Endosulfan Sulfate	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Endrin (EPA Method 525.2)	EPA 525.2	ug/L	0.01	--		--		--		ND		ND		ND		ND	
Endrin Aldehyde	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
EPTC	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Fluoranthene	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Fluorene	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
gamma-Chlordane	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Heptachlor (EPA Method 525.2)	EPA 525.2	ug/L	0.01	--		--		--		ND		ND		ND		ND	
Heptachlor Epoxide (isomer B)	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Hexachlorobenzene	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Hexachlorocyclopentadiene	EPA 525.2	ug/L	0.05	--		--		--		ND		0.052		0.078		ND	
Indeno(1,2,3,c,d)Pyrene	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Isophorone	EPA 525.2	ug/L	0.5	--		--		--		ND		ND		ND		ND	
Lindane	EPA 525.2	ug/L	0.04	--		--		--		ND		ND		ND		ND	
Malathion	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Methoxychlor (EPA Method 525.2)	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Metolachlor	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Metribuzin	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Molinate	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Naphthalene (EPA Method 525.2)	EPA 525.2	ug/L	0.5	--		--		--		ND		ND		ND		ND	
Parathion	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Pendimethalin	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Pentachlorophenol (EPA Method 525.2)	EPA 525.2	ug/L	0.04	--		--		--		ND		ND		ND		ND	
Permethrin (mixed isomers)	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Phenanthrene	EPA 525.2	ug/L	0.04	--		--		--		ND		ND		ND		ND	
Propachlor	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Pyrene	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Simazine (EPA Method 525.2)	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Terbacil	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Terbuthylazine	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	
Thiobencarb	EPA 525.2	ug/L	0.2	--		--		--		ND		ND		ND		ND	
Total PAH	EPA 525.2	ug/L	0.02	--		--		--		ND		ND		ND		ND	
trans-Nonachlor	EPA 525.2	ug/L	0.05	--		--		--		ND		ND		ND		ND	
Trifluralin	EPA 525.2	ug/L	0.1	--		--		--		ND		ND		ND		ND	

MRL = Minimum Reporting Level; ND = Not Detected above MRL; "---" = Not Analyzed; Qual = Data Qualifier
ND (<#) = Not Detected and MRL is higher than the method MRL due to dilutions
mg/L = milligrams per liter (ppm); µg/L = micrograms per liter (ppb); ng/L = nanograms per liter (ppt)
µS/cm = microsiemens per centimeter; mV = millivolts
MPN/100ml = Most Probable Number (colony forming units) per 100 ml; PFU/100ml = Plaque Forming Units per 100 ml
PFC = Perfluorinated Compound; PBDE = Polybrominated Diphenyl Ether
DBP = Disinfection Byproduct; PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound; SVOC = Semivolatile Organic Compound
Notes:
1) Some analytes are listed twice as they were analyzed via multiple methods.
2) Data qualifiers:
J = Value is detected and the result is estimated.
J- = Value is detected and the result is estimated and biased low.
J+ = Value is detected and the result is estimated and biased high.
UJ = Result is a non-detect and the value is estimated.
R = Result rejected.

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Appendix C
Data Validation Report

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DATA VALIDATION REPORT

LOTT Wastewater and Reclaimed Water
Water Quality Characterization Sampling Events

Laboratory: Eurofins Eaton Analytical (EEA)

Laboratory Report Numbers: 507838, 507852, 507854, 507862, 507866, 517350, 517353, 517355, 517384, 517386, 517388, 518510, 518512, 518516, 518517, 521053, 521367, 535546, 535637, 549205, 549211, 556901, and 556958

Dates of Sampling: 11/12/2014, 11/13/2014, 2/17/2015, 2/18/2015, 5/20/2015, 8/19/2015, and 10/7/2015

The following table summarizes for which sampling dates and locations each laboratory report relates:

Table 1. Quarterly sample dates and locations of LOTT wastewater and reclaimed water

Laboratory Report Number	Dates of Sampling	Location(s) Sampled
507838	11/12/2014 (Event 1)	MWRWP-Pre-Wetlands MWRWP-Post-Wetlands
507852	11/12/2014 (Event 1)	MWRWP-Post-Wetlands (Dup)
507854	11/12/2014 (Event 1) 11/13/2014 (Event 1)	MWRWP-Wastewater BIRWP-Wastewater
507862	11/12/2014 (Event 1) 11/13/2014 (Event 1)	MWRWP-Reclaimed BIRWP-Reclaimed
507866	11/13/2014 (Event 1)	BIRWP-Secondary
517350	2/17/2015 (Event 2)	MWRWP-Wastewater
517353	2/17/2015 (Event 2)	MWRWP-Post-Wetlands
517355	2/17/2015 (Event 2)	MWRWP-Reclaimed
517384	5/20/2015 (Event 3)	BIRWP-Wastewater
517386	5/20/2015 (Event 3)	MWRWP-Reclaimed
517388	5/20/2015 (Event 3)	MWRWP-Post-Wetlands
518510	8/19/2015 (Event 4)	BIRWP-Wastewater
518512	8/19/2015 (Event 4)	BIRWP-Reclaimed
518516	10/7/2015 (Event 4)	MWRWP-Pre-Wetlands
518517	8/19/2015 (Event 4)	BIRWP-Secondary
521053	2/18/2015 (Event 2)	BIRWP-Reclaimed
521367	2/18/2015 (Event 2)	BIRWP-Wastewater
535546	5/20/2015 (Event 3)	MWRWP-Wastewater
535637	5/20/2015 (Event 3)	BIRWP-Reclaimed
549205	10/7/2015 (Event 4)	MWRWP-Reclaimed
549211	10/7/2015 (Event 4)	MWRWP-Wastewater
556901	10/7/2015 (Event 4)	MWRWP-Wastewater MWRWP-Reclaimed MWRWP-Pre-Wetlands

		MWRWP-Post-Wetlands
556958	10/7/2015 (Event 4)	MWRWP-Post-Wetlands

INTRODUCTION

This report presents data validation for the wastewater and reclaimed water quality characterization sampling events collected quarterly from the Martin Way Reclaimed Water Plant (MWRWP), Budd Inlet Treatment Plant (BITP), and Budd Inlet Reclaimed Water Plant (BIRWP) facilities for LOTT Clean Water Alliance (LOTT). These samples were collected in accordance with the procedures and protocols specified in the *Task 1.3 Wastewater and Reclaimed Water Quality Characterization Work Plan.* The laboratory data report and Quality Assurance and Quality Control (QA/QC) data are included in this data validation report.

Verification and validation steps addressed in this report are:

- Sampling Procedures and Chain of Custody
- Holding Times
- Detection Limit
- Minimum Reporting Level (MRL) Check
- Surrogate Spike Recoveries
- Laboratory Matrix Spike/Matrix Spike Duplicates (MS/MSD) Recoveries and Relative Percent Differences (RPD)
- Laboratory Control Sample (LCS) Recoveries
- Laboratory Method Blank
- Duplicate Field Sample

Data that do not satisfy some verification and validation steps are qualified. Qualifier definitions are as follows, unless otherwise noted in subsequent sections:

- J = Analyte is detected and the result is an estimate
- J- = Analyte is detected and the result is an estimate, biased low
- J+ = Analyte is detected and the result is an estimate, biased high
- UJ = Analyte is not detected and the result is an estimate
- R = Result is rejected

SAMPLING PROCEDURES and CHAIN OF CUSTODY

Grab samples for MWRWP were collected from the following locations: raw influent at the Martin Way Pump Station; reclaimed water produced at the MWRWP treatment plant; reclaimed water at the inflow point to the wetlands at LOTT's Hawks Prairie site; and reclaimed water that had been conveyed through the wetlands, sampled at the inflow point to the infiltration basins at LOTT's Hawks Prairie site. Grab samples for BITP/BIRWP were collected from the raw wastewater entering the BITP, the treated secondary effluent discharged to Budd Inlet, and Class A reclaimed water produced at the BIRWP, prior to entering the downtown Olympia reclaimed water distribution system.

Samples were collected at dedicated taps or outflows where water samples were placed directly into new laboratory bottles. Field filtering was accomplished on the samples that require filtering using new QED high-flow 0.45 micron disposable filters and a portable peristaltic pump with new tubing for each sample. Samples were labeled, sealed, placed in a cooler, and delivered to Eurofins Eaton Analytical in Monrovia, California.

Table 2. Quarterly water quality monitoring analytical parameters for characterization of LOTT wastewater and reclaimed water

Parameter	Method	Hold Time	QC Conducted by Laboratory
Residual Chemicals	PPCP LC/MS/MS Method	28 days	LCS, Method Blank, MRL Check, MS/MSD
Trihalomethanes	524.2	14 days	LCS, Method Blank, MRL Check, MS/MSD
HAA5	SM6251B	21 days	LCS, Method Blank, MRL Check, MS/MSD
Cryptosporidium	EPA 1623	7 days	None
SVOC	EPA 525.2	30 days	LCS, Method Blank, MRL Check, MS/MSD
VOC	EPA 524.2	14 days	LCS, Method Blank, MRL Check, MS/MSD
PFOS/PFOA+ other PFCs	MWH PFC	28 days	LCS, Method Blank, MRL Check, MS/MSD
PBDEs plus permethrins	GC-QQQ	28 days	LCS, Method Blank, MRL Check, MS/MSD
EDB/DBCP	EPA 551.1	14 days	LCS, Method Blank, MRL Check, MS/MSD
Pesticides	EPA 505	14 days	LCS, Method Blank, MRL Check,

Parameter	Method	Hold Time	QC Conducted by Laboratory
			MS/MSD
Herbicides	EPA 515.4	21 days	LCS, Method Blank, MRL Check, MS/MSD
Low Detection Limit Hormones	EPA 539 Modified	28 days	LCS, Method Blank, MRL Check, MS/MSD
NDMA	EPA 521	14 days	LCS, Method Blank, MRL Check, MS/MSD
1,4-Dioxane	EPA 522	28 days	LCS, Method Blank, MRL Check, MS/MSD
Nitrate, nitrite	EPA 300. 351.1, 351.2	28 days	LCS, Method Blank, MRL Check, MS/MSD
Ammonia, TKN	EPA 350.1, 351.2	28 days	LCS, Method Blank, MRL Check, MS/MSD
Dissolved total phosphorus, Dissolved orthophosphate	EPA 365.1/SM4500-P-E	28 days	LCS, Method Blank, MRL Check, MS/MSD
Total phosphorous, orthophosphate	EPA 365.1&365.2, SM4500P-E	28 days	LCS, Method Blank, MRL Check, MS/MSD
Total organic carbon	SM 5310C	28 days	LCS, Method Blank, MRL Check, MS/MSD
Biodegradable organic carbon	Allgeier 1996	28 days	LCS, Method Blank, MRL Check, MS/MSD
Total coliform	SM 9223	30 hours	None
Fecal coliform	SM 9223	8 hours	None
Coliphage	Adams, 1959	2 days	LCS, Method Blank, MRL Check, MS/MSD
Chemical oxygen demand	EPA 410.4	28 days	LCS, Method Blank, MRL Check, MS/MSD
Biochemical oxygen demand	SM 5210B	2 days	LCS, Method Blank, MRL Check, MS/MSD
Metals (Ag, Al, As, B, Be, Ca, Cd, Cr, Cu, Fe, Hg, Pb, Mg, Mn, Na, Pb, Ni, Se, Sb, Si, Tl, Zn)[4]	EPA 200 series	180 days (28 days for Hg)	LCS, Method Blank, MRL Check, MS/MSD
Total Sulfide	SM4500SD/376.2	7 days	LCS, Method Blank,

Parameter	Method	Hold Time	QC Conducted by Laboratory
			MRL Check, MS/MSD
Chloride, Sulfate, Bromide	EPA 300.0	28 days	LCS, Method Blank, MRL Check, MS/MSD
Chloramines	SM 4500CL-G	6 hours	LCS, Method Blank, MRL Check, MS/MSD
Fluoride	SM 4500F-C	28 days	LCS, Method Blank, MRL Check, MS/MSD
Free and total chlorine	SM 4500CL-G	6 hours	LCS, Method Blank, MRL Check, MS/MSD
Total dissolved solids	SM 2540C	7 days	LCS, Method Blank, MRL Check, MS/MSD

A copy of the completed chain-of-custody (COC) forms is included in the data packages for all batches analyzed for the sampling event. The forms were properly filled out and include relinquished and received signatures. Shipments were received by the laboratory on the day following sampling. The cooler temperatures ranged from 1.1 ^{o}C to 5.3^{o} C, and frozen wet ice was present in each cooler.

HOLDING TIMES

The maximum holding times for the various analyses are included in Table 2. Samples were extracted and analyzed within the holding times with the following exceptions:

- Samples analyzed for bromide for EPA Method 300 exceeded hold times for lab report 507838. The samples were qualified as J-.
- Samples analyzed for 1,4-Dioxane for EPA Method 522 exceeded hold times for lab report 507854. The samples were qualified as J-.
- Samples analyzed for SM 5210B exceeded hold times for lab reports 507838, 507852, 507854, 507862, and 549211. Samples were qualified as J.
- Samples analyzed for SM 4500-CL G exceeded hold times for lab reports 507838, 507852, 507854, 507862, 507866, 517350, 517353, 517355, 517384, 517386, 517388, 521053, 521367, 535546, and 535637. Detections were qualified as J- and non-detects were qualified as UJ.
- Samples analyzed for SM 9222 exceeded hold times in lab reports 507838, 507852, 507854, 507862, 507866, 517350, 517353, 517355, 517384, 517386, 517388, 521053, 521367, 535546, and 535637. Detections were qualified as J and non-detects were qualified as UJ.

- Upon initial review, the residual chemical parameters were determined to have exceeded hold times for lab reports 517384, 517386, 517388, 518510, 518512, 518516, 535546, 535637, 549205, 549211, 556958. Similarly, several analytes for method MWH PFC also exceeded hold times for lab reports 507854, 517384, 517386, 517388, 518516, 535546, 535637, 549205, 549211, 556958. A hold time study was conducted in 2016 to determine the effects of long hold times on the pharmaceuticals and personal care products (PPCPs) and perflourinated compounds (PFCs). A brief summary of that hold time study and its results is provided below.

Method LC-MS-MS Hold Time Study

The laboratory hold times for samples run for PPCPs and PFCs in wastewater and reclaimed water ranged from 28 to 70 days. Although EEA's laboratory method has no formalized hold times for these compounds, these hold times are longer than the 28 day analytical schedule EEA customarily utilizes for processing such samples.

To evaluate the effects of these extended hold times, EEA conducted a study to evaluate the effects of extending the hold times to 84 days for PPCPs. EEA also prepared information documenting that PFCs are very stable. The methods and the detailed results of that study are presented in a summary memorandum by HDR dated November 9, 2016 and in EEA's report, "Holding Time Study Results for PPCPs and Metformin, LOTT Clean Water Alliance Project" dated November 4, 2016. Both documents are included as Attachment A to this data validation report.

The results of the hold time study indicate that 90 of the 98 compounds evaluated appear to remain stable throughout the 84 day period. Eight compounds appear to show evidence of degradation or analytical variability, as follows:

- Two compounds (metazachlor and metolachlor) began to degrade after approximately two weeks. Because all metazachlor and metolachlor samples were analyzed past a two week hold time, all of the results for these two parameters are assigned an "R" data quality flag, indicating the data are rejected. Note this impacts only the metazachlor data, as metolachlor was not analyzed for during the sampling efforts included in this data validation report (this compound was added to the laboratory's standard analytical list after the start of this effort).
- Four compounds (amoxicillin, azithromycin, cimetidine, and nonyl-phenol) show analytical variability on individual days and between days. Therefore, the results for these compounds should be considered semi quantitative (i.e., concentration results are estimates). "J" data quality flags are assigned for all of the results for these compounds (non-detects are assigned a "UJ" flag).
- Two compounds (nifedipine and theophyline) show concentrations consistently under or over the laboratory control sample (LCS) limits, but no evidence of inconsistent variability or degradation. This appears to be the result of a sample matrix effect or calibration artifact for this sample. "J" data quality flags are assigned for all of the results for these compounds (non-detects are assigned a "UJ" flag). Note Theophyline was not analyzed for in samples included in this data validation report (this compound was added to the laboratory's standard analytical list after the start of this effort).

DETECTION LIMIT

Detection limits are specified by the analytical methods. For samples that were diluted by the laboratory, the MRL was raised by the factor of the dilution (i.e., for an MRL of 0.1 mg/L and dilution factor of 2, the diluted MRL is calculated to be 0.2 mg/L). No qualifications were made to the data due to dilutions. Analytes with results below the MRL are defined as "ND" (Not Detected). Analytes with results below a diluted MRL are defined as "ND (<#)", where "#" represented the calculated diluted MRL.

MINIMUM REPORTING LEVEL (MRL) CHECK

A reporting level standard is included with every batch/analytical run to confirm the instrument response with the given batch. The following qualifications were made for data exceeding MRL recoveries QC limits:

- The MRL recovery for Butachlor by EPA Method 525.2 was 166% versus a limit of 50-150% for sample MWRWP-RAW in lab report 507854. The sample was qualified UJ.
- The MRL recovery for Dimethoate by EPA Method 525.2 was 103% versus a limit of 35-100% for sample MWRWP-RAW in lab report 507854. The sample was qualified UJ.
- The MRL recovery for Zinc Total by EPA Method 200.8 was 168% versus a limit of 50-150% for sample MWRWP-RAW and BITP-RAW in lab report 507854. The samples were qualified as J+.
- The MRL recovery for Dissolved Total Phosphorus as P was 163% versus a limit of 50-150% for samples MWRWP-RAW dissolved, MWRWP-Basin – dissolved, MWRWP-Reclaimed – dissolved, and BITP-RAW dissolved in lab reports 517350, 517353, 517355, and 521367, respectively. The samples were qualified as J+.

SURROGATE SPIKE RECOVERIES

Surrogates are organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analysis. Surrogate spikes were added to each sample associated with EPA 515.4 - Chlorophenoxy Herbicides, EPA 505 - Organochlorine Pesticides/PCBs, EPA 525.2 - Semivolatiles by GCMS, and EPA 524.2 - Volatile Organics by GCMS. Recoveries were reviewed and evaluated for adherence to the control limits specified for the various analytical methods:

Table 3. Surrogate Control Limits

Surrogate Parameter	Control Limits (% recovery)
EPA 515.4 - Chlorophenoxy Herbicides	
2,4-Dichlorophenyl acetic acid	70-130
EPA 505 - Organochlorine Pesticides/PCBs	
Tetrachlorometaxylene	70-130
EPA 522 – 1,4-Dioxane	
Dioxane-d8	70-130
EPA 525.2 - Semivolatiles by GCMS	
1,3-Dimethyl-2-nitrobenzene	70-130
Perylene-d12	70-130
Triphenylphosphate	70-130
EPA 524.2 - Volatile Organics by GCMS	
1,2-Dichloroethane-d4	70-130
4-Bromofluorobenzene	70-130
Toluene-d8	70-130
EPA 551.1 - EDB/DBCP/HAN	
1,2-Dibromopropane	80-120
Haloacetic Acids by SM 6251B	
2,3-Dibromopropionic acid	70-130
Nitrosamines by GCMS by EPA 521	
NDMA-D6	70-130
GC-QQQ PBDE - @PBDE_Pyrithroid	
BHT-d21	40-150
perylene-d12	40-150

Surrogate recoveries were low for the following samples. Results were qualified as estimates.

Table 4. Surrogate Recovery Control Limits Exceeding QC Limits

Lab Report	Sample ID	Analyte	Sample Result	Analytical Method	Qual
507854	BITP-RAW	Alachlor (Alanex)	ND	EPA 505	UJ
507854	BITP-RAW	Aldrin	ND	EPA 505	UJ
507854	BITP-RAW	Chlordane	ND	EPA 505	UJ
507854	BITP-RAW	Dieldrin	ND	EPA 505	UJ
507854	BITP-RAW	Endrin	ND	EPA 505	UJ
507854	BITP-RAW	Heptachlor	0.01 ug/L	EPA 505	J-
507854	BITP-RAW	Heptachlor Epoxide	ND	EPA 505	UJ
507854	BITP-RAW	Lindane (gamma-BHC)	ND	EPA 505	UJ
507854	BITP-RAW	Methoxychlor	ND	EPA 505	UJ
507854	BITP-RAW	PCB 1016 Aroclor	ND	EPA 505	UJ
507854	BITP-RAW	PCB 1221 Aroclor	ND	EPA 505	UJ
507854	BITP-RAW	PCB 1232 Aroclor	ND	EPA 505	UJ
507854	BITP-RAW	PCB 1242 Aroclor	ND	EPA 505	UJ
507854	BITP-RAW	PCB 1248 Aroclor	ND	EPA 505	UJ
507854	BITP-RAW	PCB 1254 Aroclor	ND	EPA 505	UJ
507854	BITP-RAW	PCB 1260 Aroclor	ND	EPA 505	UJ
507854	BITP-RAW	Total PCBs	ND	EPA 505	UJ

Lab Report	Sample ID	Analyte	Sample Result	Analytical Method	Qual
507854	BITP-RAW	Toxaphene	ND	EPA 505	UJ
507854	BITP-RAW	BDE-100	ND	GC-QQQ PBDE	UJ
507854	BITP-RAW	BDE-153	ND	GC-QQQ PBDE	UJ
507854	BITP-RAW	BDE-154	ND	GC-QQQ PBDE	UJ
507854	BITP-RAW	BDE-183	ND	GC-QQQ PBDE	UJ
507854	BITP-RAW	BDE-209	ND	GC-QQQ PBDE	UJ
507854	BITP-RAW	BDE-28	ND	GC-QQQ PBDE	UJ
507854	BITP-RAW	BDE-47	ND	GC-QQQ PBDE	UJ
507854	BITP-RAW	BDE-99	ND	GC-QQQ PBDE	UJ
507854	BITP-RAW	Bifenthrin	ND	GC-QQQ PBDE	UJ
507854	BITP-RAW	cis-Permethrin	8.7 ng/L	GC-QQQ PBDE	J-
507854	BITP-RAW	Fipronil	4.1 ng/L	GC-QQQ PBDE	J-
507854	BITP-RAW	Total Permethrin	24 ng/L	GC-QQQ PBDE	J-
507854	BITP-RAW	trans-Permethrin	13 ng/L	GC-QQQ PBDE	J-
507854	MWRWP-RAW	Alachlor (Alanex)	ND	EPA 505	UJ
507854	MWRWP-RAW	Aldrin	ND	EPA 505	UJ
507854	MWRWP-RAW	Chlordane	ND	EPA 505	UJ
507854	MWRWP-RAW	Dieldrin	ND	EPA 505	UJ
507854	MWRWP-RAW	Endrin	ND	EPA 505	UJ
507854	MWRWP-RAW	Heptachlor	ND	EPA 505	UJ
507854	MWRWP-RAW	Heptachlor Epoxide	ND	EPA 505	UJ
507854	MWRWP-RAW	Lindane (gamma-BHC)	ND	EPA 505	UJ
507854	MWRWP-RAW	Methoxychlor	ND	EPA 505	UJ
507854	MWRWP-RAW	PCB 1016 Aroclor	ND	EPA 505	UJ
507854	MWRWP-RAW	PCB 1221 Aroclor	ND	EPA 505	UJ
507854	MWRWP-RAW	PCB 1232 Aroclor	ND	EPA 505	UJ
507854	MWRWP-RAW	PCB 1242 Aroclor	ND	EPA 505	UJ
507854	MWRWP-RAW	PCB 1248 Aroclor	ND	EPA 505	UJ
507854	MWRWP-RAW	PCB 1254 Aroclor	ND	EPA 505	UJ
507854	MWRWP-RAW	PCB 1260 Aroclor	ND	EPA 505	UJ
507854	MWRWP-RAW	Total PCBs	ND	EPA 505	UJ
507854	MWRWP-RAW	Toxaphene	ND	EPA 505	UJ
507854	MWRWP-RAW	1,4-Dioxane	0.46 ug/L	EPA 522	J-
507854	MWRWP-RAW	Di(2-Ethylhexyl)phthalate	2.6 ug/L	EPA 525.2	J+
507854	MWRWP-RAW	BDE-100	ND	GC-QQQ PBDE	UJ
507854	MWRWP-RAW	BDE-153	ND	GC-QQQ PBDE	UJ
507854	MWRWP-RAW	BDE-154	ND	GC-QQQ PBDE	UJ
507854	MWRWP-RAW	BDE-183	ND	GC-QQQ PBDE	UJ
507854	MWRWP-RAW	BDE-209	ND	GC-QQQ PBDE	UJ
507854	MWRWP-RAW	BDE-28	ND	GC-QQQ PBDE	UJ

Lab Report	Sample ID	Analyte	Sample Result	Analytical Method	Qual
507854	MWRWP-RAW	BDE-47	ND	GC-QQQ PBDE	UJ
507854	MWRWP-RAW	BDE-99	ND	GC-QQQ PBDE	UJ
507854	MWRWP-RAW	Bifenthrin	ND	GC-QQQ PBDE	UJ
507854	MWRWP-RAW	cis-Permethrin	7.8 ng/L	GC-QQQ PBDE	J-
507854	MWRWP-RAW	Fipronil	2.7 ng/L	GC-QQQ PBDE	J-
507854	MWRWP-RAW	Total Permethrin	18 ng/L	GC-QQQ PBDE	J-
507854	MWRWP-RAW	trans-Permethrin	9.8 ng/L	GC-QQQ PBDE	J-
517350	MWRWP-RAW	N-Nitroso dimethylamine	ND	EPA 521	UJ
517384	BITP-RAW	N-Nitroso dimethylamine	ND	EPA 521	UJ
517384	BITP-RAW	1,4-Dioxane	0.26 ug/L	EPA 522	J-
517384	BITP-RAW	BDE-100	ND	GC-QQQ PBDE	UJ
517384	BITP-RAW	BDE-153	ND	GC-QQQ PBDE	UJ
517384	BITP-RAW	BDE-154	ND	GC-QQQ PBDE	UJ
517384	BITP-RAW	BDE-183	ND	GC-QQQ PBDE	UJ
517384	BITP-RAW	BDE-209	ND	GC-QQQ PBDE	UJ
517384	BITP-RAW	BDE-28	ND	GC-QQQ PBDE	UJ
517384	BITP-RAW	BDE-47	ND	GC-QQQ PBDE	UJ
517384	BITP-RAW	BDE-99	ND	GC-QQQ PBDE	UJ
517384	BITP-RAW	Bifenthrin	ND	GC-QQQ PBDE	UJ
517384	BITP-RAW	cis-Permethrin	14 ng/L	GC-QQQ PBDE	J-
517384	BITP-RAW	Fipronil	ND	GC-QQQ PBDE	UJ
517384	BITP-RAW	Total Permethrin	33 ng/L	GC-QQQ PBDE	J-
517384	BITP-RAW	trans-Permethrin	19 ng/L	GC-QQQ PBDE	J-
518510	BITP-RAW	PCB 1016 Aroclor	ND	EPA 505	UJ
518510	BITP-RAW	PCB 1254 Aroclor	ND	EPA 505	UJ
518510	BITP-RAW	Heptachlor Epoxide	ND	EPA 505	UJ
518510	BITP-RAW	Lindane (gamma-BHC)	ND	EPA 505	UJ
518510	BITP-RAW	Methoxychlor	ND	EPA 505	UJ
518510	BITP-RAW	Chlordane	ND	EPA 505	UJ
518510	BITP-RAW	Toxaphene	ND	EPA 505	UJ
518510	BITP-RAW	Total PCBs	ND	EPA 505	UJ
518510	BITP-RAW	PCB 1242 Aroclor	ND	EPA 505	UJ
518510	BITP-RAW	Heptachlor	ND	EPA 505	UJ
518510	BITP-RAW	Aldrin	ND	EPA 505	UJ
518510	BITP-RAW	Endrin	ND	EPA 505	UJ
518510	BITP-RAW	PCB 1221 Aroclor	ND	EPA 505	UJ
518510	BITP-RAW	PCB 1248 Aroclor	ND	EPA 505	UJ
518510	BITP-RAW	PCB 1260 Aroclor	ND	EPA 505	UJ
518510	BITP-RAW	Alachlor (Alanex)	ND	EPA 505	UJ
518510	BITP-RAW	Dieldrin	ND	EPA 505	UJ

Lab Report	Sample ID	Analyte	Sample Result	Analytical Method	Qual
518510	BITP-RAW	PCB 1232 Aroclor	ND	EPA 505	UJ
518510	BITP-RAW	N-Nitroso dimethylamine	ND	EPA 521	UJ
518510	BITP-RAW	1,4-Dioxane	0.29 ug/L	EPA 522	J-
518510	BITP-RAW	BDE-153	ND	GC-QQQ PBDE	UJ
518510	BITP-RAW	Fipronil	5.1 ng/L	GC-QQQ PBDE	J-
518510	BITP-RAW	BDE-209	ND	GC-QQQ PBDE	UJ
518510	BITP-RAW	BDE-100	ND	GC-QQQ PBDE	UJ
518510	BITP-RAW	BDE-99	8.4 ng/L	GC-QQQ PBDE	J-
518510	BITP-RAW	cis-Permethrin	ND	GC-QQQ PBDE	UJ
518510	BITP-RAW	Bifenthrin	ND	GC-QQQ PBDE	UJ
518510	BITP-RAW	BDE-154	ND	GC-QQQ PBDE	UJ
518510	BITP-RAW	BDE-183	ND	GC-QQQ PBDE	UJ
518510	BITP-RAW	BDE-47	9.9 ng/L	GC-QQQ PBDE	J-
518510	BITP-RAW	BDE-28	ND	GC-QQQ PBDE	UJ
518510	BITP-RAW	trans-Permethrin	ND	GC-QQQ PBDE	UJ
518510	BITP-RAW	Total Permethrin	ND	GC-QQQ PBDE	UJ
521367	BITP-RAW	N-Nitroso dimethylamine	ND	EPA 521	UJ
535546	MWRWP-RAW	N-Nitroso dimethylamine	ND	EPA 521	UJ
535546	MWRWP-RAW	BDE-100	ND	GC-QQQ PBDE	UJ
535546	MWRWP-RAW	BDE-153	ND	GC-QQQ PBDE	UJ
535546	MWRWP-RAW	BDE-154	ND	GC-QQQ PBDE	UJ
535546	MWRWP-RAW	BDE-183	ND	GC-QQQ PBDE	UJ
535546	MWRWP-RAW	BDE-209	ND	GC-QQQ PBDE	UJ
535546	MWRWP-RAW	BDE-28	ND	GC-QQQ PBDE	UJ
535546	MWRWP-RAW	BDE-47	5.3 ng/L	GC-QQQ PBDE	J-
535546	MWRWP-RAW	BDE-99	5.5 ng/L	GC-QQQ PBDE	J-
535546	MWRWP-RAW	Bifenthrin	ND	GC-QQQ PBDE	UJ
535546	MWRWP-RAW	cis-Permethrin	28 ng/L	GC-QQQ PBDE	J-
535546	MWRWP-RAW	Fipronil	2.9 ng/L	GC-QQQ PBDE	J-
535546	MWRWP-RAW	Total Permethrin	65 ng/L	GC-QQQ PBDE	J-
535546	MWRWP-RAW	trans-Permethrin	37 ng/L	GC-QQQ PBDE	J-
535637	BITP - Reclaimed	BDE-28	ND	GC-QQQ PBDE	UJ
535637	BITP - Reclaimed	BDE-47	ND	GC-QQQ PBDE	UJ
535637	BITP - Reclaimed	Bifenthrin	ND	GC-QQQ PBDE	UJ
535637	BITP - Reclaimed	Fipronil	ND	GC-QQQ PBDE	UJ
549211	MWRWP-RAW	Dieldrin	ND	EPA 505	UJ
549211	MWRWP-RAW	Heptachlor	ND	EPA 505	UJ
549211	MWRWP-RAW	Lindane (gamma-BHC)	ND	EPA 505	UJ
549211	MWRWP-RAW	Toxaphene	ND	EPA 505	UJ
549211	MWRWP-RAW	PCB 1016 Aroclor	ND	EPA 505	UJ

Lab Report	Sample ID	Analyte	Sample Result	Analytical Method	Qual
549211	MWRWP-RAW	Aldrin	ND	EPA 505	UJ
549211	MWRWP-RAW	Methoxychlor	ND	EPA 505	UJ
549211	MWRWP-RAW	PCB 1232 Aroclor	ND	EPA 505	UJ
549211	MWRWP-RAW	PCB 1221 Aroclor	ND	EPA 505	UJ
549211	MWRWP-RAW	PCB 1248 Aroclor	ND	EPA 505	UJ
549211	MWRWP-RAW	PCB 1242 Aroclor	ND	EPA 505	UJ
549211	MWRWP-RAW	Heptachlor Epoxide	ND	EPA 505	UJ
549211	MWRWP-RAW	PCB 1260 Aroclor	ND	EPA 505	UJ
549211	MWRWP-RAW	Chlordane	ND	EPA 505	UJ
549211	MWRWP-RAW	PCB 1254 Aroclor	ND	EPA 505	UJ
549211	MWRWP-RAW	Alachlor (Alanex)	ND	EPA 505	UJ
549211	MWRWP-RAW	Endrin	ND	EPA 505	UJ
549211	MWRWP-RAW	Total PCBs	ND	EPA 505	UJ

LABORATORY MATRIX SPIKE/MATIRX SPIKE DUPLICATES (MS/MSD) RECOVERIES and RELATIVE PERCENT DIFFERENCES (RPD)

To assess potential matrix effects, an environmental sample and a duplicate are spiked with known concentrations of target analytes. The percent recovery of the target analytes is compared to statistical control limits.

Analytes that failed both MS and MSD are qualified as estimated. Analytes that were not detected and that had MS/MSD recoveries below 10 percent were rejected. Analytes that failed on only the MS or the MSD are considered acceptable and the data are not qualified for these analytes. Sample concentrations that exceed the spike added concentrations by more than a factor of four are not flagged.

MS and MSD recoveries were all within the QC limits with the following exceptions noted in Table 5. In addition, in instances where the spike recovery is high, but the results is ND, there is no impact on the data since ND with high recovery is still ND. Samples spiked for MS/MSD from non-LOTT projects were not evaluated.

Table 5. Laboratory Matrix Spikes and Spike Duplicates Exceeding QC Limits

Lab Report	Sample ID	Analyte	Sample Result	MS % Yield	MSD % Yield	QC Limits (%)	qualifier
507838	MWRWP-Wetland	Atenolol	27 ng/L	53	57	60-140	J-
		Carbadox	ND	2.7	2.7	60-140	R
		Chloridazon	ND	24	22	60-140	UJ
		Cimetidine	ND	14	12	60-140	UJ
		Endrin Aldehyde	ND	45	31	70-140	UJ
		Erythromycin	10 ng/L	246	269	60-140	J+
		Fluoxetine	72 ng/L	178	177	60-140	J+
		Orthophosphate as P	3.6 mg/L	74	75	90-110	J-
		Sulfachloropyridazine	ND	17	18	60-140	UJ
		TCEP	74 ng/L	39	32	60-140	J-
	MWRWP-Wetland- dissolved	Zinc dissolved ICAP/MS	110 ug/L	214	213	70-130	J+
507852	DUP MWRWP-Basin - dissolved	Zinc dissolved ICAP/MS	51 ug/L	157	155	70-130	J+
507862	MWRWP-Reclaimed	Atenolol	36 ng/L	55	57	60-140	J-
		Carbadox	ND	2.7	2.7	60-140	R
		Cimetidine	ND	14	12	60-140	UJ
		Endrin Aldehyde	ND	45	31	70-140	UJ
		Erythromycin	16 ng/L	246	269	60-140	J+
		Fluoxetine	65 ng/L	178	177	60-140	J+
		Sulfachloropyridazine	ND	17	18	60-140	UJ
		TCEP	39 ng/L	39	32	60-140	J-
517384	BITP-RAW	Chemical Oxygen Demand (COD)	740 mg/L	-2.39	-25.1	90-110	J-

Lab Report	Sample ID	Analyte	Sample Result	MS % Yield	MSD % Yield	QC Limits (%)	qualifier
535637	BITP - Reclaimed	Chemical Oxygen Demand (COD)	14 mg/L	78	88	90-110	J-
		Acesulfame-K	12000 ng/L	3530	3460	60-140	J+
		Sucralose	43000 ng/L	1800	1540	60-140	J+
		1,7-Dimethylxanthine	ND	0.280	0.394	60-140	R
		Chloridazon	ND	33	24	60-140	UJ
		Cotinine	38 ng/L	161	161	60-140	J
		DACT	5 ng/L	34	33	60-140	J-
		Diuron	ND	50	54	60-140	UJ
		Fluoxetine	31 ng/L	50	58	60-140	J-
		Lidocaine	ND	32	35	60-140	UJ
		Lopressor	170 ng/L	34	34	60-140	J-
		Meprobamate	22 ng/L	42	41	60-140	J-
		Pentoxifylline	9.9 ng/L	-3.76	-9.92	60-140	J-
		Sulfachloropyridazine	ND	55	53	60-140	UJ
		Sulfadiazine	ND	0.990	0.500	60-140	R
		Sulfamerazine	ND	42	36	60-140	UJ
556958	MWRWP-Basin-Dissolved	Orthophosphate as P	3.8 mg/L	26	25	90-110	J-

Lab Report	Sample ID	Analyte	Sample Result	MS % Yield	MSD % Yield	QC Limits (%)	qualifier
556958	MWRWP-Basin	4-n-Octylphenol diethoxylate	ND	45	54	60-140	UJ
		Perfluoro butanoic acid- PFBA	ND	30	28	70-130	UJ
		Perfluoro-n-decanoic acid	ND	21	14	70-130	UJ
		Perfluoropentanoic acid	93 ng/L	-224	-229	70-130	J-
		Perfluoro octanesulfonate-PFOS	ND	15	7.6	70-130	UJ
		Perfluoro-n-nonanoic acid	ND	22	16	70-130	UJ
		Perfluoro octanesulfonic acid - PFOS	ND	14	7.5	70-130	UJ
		Heptachlor Epoxide	ND	51	52	65-135	UJ
		Perfluoro-1-hexanesulfonate	ND	33	24	70-130	UJ
		Perfluoro octanoic acid - PFOA	22 ng/L	33.8	39.2	70-130	J-
		Perfluoro-1-butanesulfonate	12 ng/L	-7.6	-8	70-130	J-
		Perfluoro-1-hexanesulfonic acid	ND	33	24	70-130	UJ
		Perfluoro-n-hexanoic acid	68 ng/L	-159	-158	70-130	J-
		Perfluoro-1-butanesulfonic acid	12 ng/L	-8.85	57	70-130	J-
		Chloramphenicol	ND	46	46	60-140	UJ
		Perfluoro-n-heptanoic acid	ND	44	47	70-130	UJ
		Orthophosphate as P	3.7 mg/L	36	42	90-110	J-
		1,4-Dioxane	0.55 ug/L	186	207	50-150	J+
		Sucralose	68000 ng/L	-70.1	-410	60-140	J-

The relative percent difference (RPD) for the MS/MSDs were within acceptable laboratory tolerances, with the following exceptions. Samples were qualified as estimates.

Table 6. Laboratory Matrix Spikes and Spike Duplicate RPDs Exceeding QC Limits

Lab Report	Sample	Analyte	Sample Result	MS/MSD RPD (%)	QC Limits (%)	Qualifier
507862	MWRWP-Reclaimed	Primidone	64 ng/L	76	40	J+
507838	MWRWP-Wetland	Primidone	170 ng/L	76	40	J+
535637	BITP - Reclaimed	TDCPP	310 ng/L	150	60	J
556958	MWRWP-Basin	4-tert-octylphenol	55 ng/L	43	40	J
556958	MWRWP-Basin	Perfluoro-1-butanesulfonic acid	12 ng/L	88	30	J-
518516	MWRWP-Wetland	Kjeldahl Nitrogen	0.97 mg/L	20	10	J

LABORATORY CONTROL SAMPLE (LCS) RECOVERIES

Laboratory Control Samples (LCS) are samples of known concentration that are carried through the extraction and analysis process. The percent recovery is the percentage of the theoretical concentration, and has statistical control limits indicating that the analytical process is "in control."

An LCS sample was run in duplicate with the work order samples. LCS recoveries were all within the QC limits with the exceptions noted in Table 4. In addition, in instances where the LCS recovery is high, but the sample result is ND, there is no impact on the data since ND with high recovery is still ND.

Table 7. Laboratory Control Samples Exceeding QC Limits

Lab Report	Sample ID	Analyte	Sample Result	LCS Yield (%)	QC Limits	Qualifier
507852	DUP MWRP-Basin	BDE-153	ND	69	70-130	UJ
507852	DUP MWRP-Basin	BDE-154	ND	67	70-130	UJ
507852	DUP MWRP-Basin	BDE-209	ND	50	70-130	UJ
507854	MWRWP-RAW	BDE-100	ND	69	70-130	UJ
507854	MWRWP-RAW	BDE-153	ND	69	70-130	UJ
507854	MWRWP-RAW	BDE-154	ND	67	70-130	UJ
507854	MWRWP-RAW	BDE-209	ND	50	70-130	UJ
507854	MWRWP-RAW	Ammonia Nitrogen	44 mg/L	111	90-110	J+
507862	MWRWP-Reclaimed	BDE-100	ND	69	70-130	UJ
507862	MWRWP-Reclaimed	BDE-153	ND	69	70-130	UJ
507862	MWRWP-Reclaimed	BDE-154	ND	67	70-130	UJ
507862	MWRWP-Reclaimed	BDE-209	ND	50	70-130	UJ
507862	BITP-Reclaimed	BDE-100	ND	69	70-130	UJ
507862	BITP-Reclaimed	BDE-153	ND	69	70-130	UJ
507862	BITP-Reclaimed	BDE-154	ND	67	70-130	UJ
507862	BITP-Reclaimed	BDE-209	ND	50	70-130	UJ

507862	BITP-Reclaimed	Ammonia Nitrogen	2.9 mg/L	111	90-110	J+
507854	BITP-RAW	BDE-100	ND	69	70-130	UJ
507854	BITP-RAW	BDE-153	ND	69	70-130	UJ
507854	BITP-RAW	BDE-154	ND	67	70-130	UJ
507854	BITP-RAW	BDE-209	ND	50	70-130	UJ
517384	BITP-RAW	BDE-209	ND	67	70-130	UJ
517386	MWRWP-Reclaimed	BDE-209	ND	64	70-130	UJ
517386	MWRWP-Reclaimed	Chloroform (Trichloromethane)	12 ug/L	144	70-130	J+
535637	BITP - Reclaimed	BDE-209	ND	64	70-130	UJ
517388	MWRWP-Basin	BDE-209	ND	64	70-130	UJ
517388	MWRWP-Basin	Chloroform (Trichloromethane)	5.7 ug/L	144	70-130	J+
549205	MWRWP-Reclaimed	4-nonylphenol - semi quantitative	110 ng/L	161	60-140	J
518516	MWRWP-Wetland	4-nonylphenol - semi quantitative	180 ng/L	161	60-140	J

The RPD for the LCS samples were within acceptable laboratory tolerances, with the following exceptions. Samples were qualified as estimates.

Table 8. Laboratory Control Spike and Spike Duplicate RPDs Exceeding QC Limits

Lab Report	Sample ID	Analyte	Sample Result	LCS RPD (%)	QC Limits (%)	Qualifier
507854	MWRWP-RAW	Perfluoro octanoic acid - PFOA	5.5 ng/L	30	20	J
507862	MWRWP-Reclaimed	Perfluoro octanoic acid - PFOA	16 ng/L	30	20	J
507862	BITP-Reclaimed	Perfluoro octanoic acid - PFOA	7.4 ng/L	30	20	J
517384	BITP-RAW	Azithromycin	330 ng/L	43	30	J
535546	MWRWP-RAW	Azithromycin	210 ng/L	43	30	J
517386	MWRWP-Reclaimed	Chloroform (Trichloromethane)	12 ug/L	25	20	J+
535637	BITP - Reclaimed	TDCPP	310 ng/L	40	30	J
517388	MWRWP-Basin	Chloroform (Trichloromethane)	5.7 ug/L	25	20	J+
549211	MWRWP-RAW	Quinoline	250 ng/L	39	30	J
549211	MWRWP-RAW	TDCPP	510 ng/L	37	30	J
549211	MWRWP-RAW	Atenolol	1500 ng/L	45	30	J
549205	MWRWP-Reclaimed	Atenolol	62 ng/L	45	30	J
556958	MWRWP-Basin	TDCPP	170 ng/L	37	30	J
556958	MWRWP-Basin	Atenolol	25 ng/L	45	30	J
518516	MWRWP-Wetland	Atenolol	44 ng/L	45	30	J
518510	BITP-RAW	Cotinine	2,400 ng/L	36	30	J
518510	BITP-RAW	Albuterol	46 ng/L	33	30	J

LABORATORY METHOD BLANK

An aliquot of reagent water was carried through the entire analytical process. The method blank results indicate any possible contamination exposure during the sample handling, digestion, or

extraction process and analysis. In most instances, compounds were not detected at or above the method reporting limits. If the target analyte was detected in the blank, but the sample was ND, no qualification was made. If the sample result was less than 10 times the result of the method blank, the sample was qualified as an estimate biased high. The following qualifications were made based on this criterion.

Table 9. Method Blanks Results

Lab Report	Sample ID	Analyte	Sample Result	Blank Result	Qualifier
507838	MWRP-Basin	Dissolved Organic Carbon - Initial	5.2 mg/L	0.796 mg/L	J+
507838	MWRWP-Wetland	Dissolved Organic Carbon - Initial	5.4 mg/L	0.796 mg/L	J+
507852	DUP MWRP-Basin	Dissolved Organic Carbon - Initial	4.5 mg/L	0.796 mg/L	J+
507862	MWRWP-Reclaimed	Biodegradable Dis. Org. Carbon	0.76 mg/L	0.438 mg/L	J+
507862	MWRWP-Reclaimed	Dissolved Organic Carbon - Initial	5.5 mg/L	0.796 mg/L	J+
507862	BITP-Reclaimed	Biodegradable Dis. Org. Carbon	0.7 mg/L	0.438 mg/L	J+
507862	BITP-Reclaimed	Dissolved Organic Carbon - Initial	4.8 mg/L	0.796 mg/L	J+
507866	BITPW-SECONDARY	Dissolved Organic Carbon - Initial	5.5 mg/L	0.796 mg/L	J+
517355	MWRWP-Reclaimed	Biodegradable Dis. Org. Carbon	0.62 mg/L	0.307 mg/L	J+
517355	MWRWP-Reclaimed	Dissolved Organic Carbon - Initial	5.9 mg/L	0.772 mg/L	J+
517386	MWRWP-Reclaimed	Dissolved Organic Carbon - Initial	6.5 mg/L	0.780 mg/L	J+
535637	BITP - Reclaimed	Dissolved Organic Carbon - Initial	7.1 mg/L	0.780 mg/L	J+
517388	MWRWP-Basin	Dissolved Organic Carbon - Initial	6.6 mg/L	0.780 mg/L	J+
556958	MWRWP-Basin	Dissolved Organic Carbon - Initial	4.9 mg/L	0.694 mg/L	J+
518516	MWRWP-Wetland	Dissolved Organic Carbon - Initial	5.2 mg/L	0.694 mg/L	J+
518512	BITP-Reclaimed	Dissolved Organic Carbon - Initial	6.5 mg/L	0.730 mg/L	J+
518517	BITPW-SECONDARY	Dissolved Organic Carbon - Initial	6.9 mg/L	0.730 mg/L	J+
518517	BITPW-SECONDARY	Azithromycin	65 ng/L	63.3 ng/L	J+

DUPLICATE FIELD SAMPLE

A duplicate sample was secured for MWRP-Basin (Duplicate: DUP- MWRP-Basin). RPDs ranged from 0% to 83%. Generally, a RPD of less than 20 percent is desirable. Table 10 lists the RPDs that exceeded 20%, for which J qualifiers were noted (both for the parent and duplicate samples).

Table 10. Relative Percent Difference (RPD) Exceeding 20% for Duplicate Sample from MWRP-Basin

Analyte	DUP MWRP-Basin	MWRP-Basin	RPD	Qual.
Atenolol	6.3	9.4	39%	J
Bromacil	5.8	14	83%	J
DEA	20	13	42%	J
Estrone (low detection)	1	0.77	26%	J
Fluoride	0.066	0.087	27%	J
Gemfibrozil	33	14	81%	J
Iohexal	300	230	26%	J
Lidocaine	9.1	12	27%	J
Perfluoropentanoic acid	45	31	37%	J
Somatic coliphage titer	14	20	35%	J
Sucralose	54,000	33,000	48%	J
Sulfamethoxazole	36	50	33%	J
TCEP	46	66	36%	J
TDCPP	170	210	21%	J
Thiabendazole	480	600	22%	J

RPD = [(Parent Sample) – (Duplicate)]/[mean(Parent Sample, Duplicate)] X 100

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Attachment A

Hold Time Study Documentation

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Memorandum

To: Wendy Steffensen, LOTT Clean Water Alliance	
From: John Koreny and Jeff Hansen, HDR	Project: LOTT Reclaimed Water Infiltration Study
CC:	
Date: November 9, 2016	Job No: 238761

RE: Hold Time Analysis, PPCPs and Metformin

Background

Eurofins Eaton Analytical, Inc. (EEA), the laboratory under contract to provide analytical services in support of LOTT's Reclaimed Water Infiltration Study, or RWIS) has completed an analysis to determine the effects of extended hold times on pharmaceuticals and personal care products (PPCPs), perfluorinated compounds (PFCs) and metformin (referred to collectively as "residual chemicals" in the RWIS). This analysis was completed to address questions that have arisen regarding the 28 to 70 day hold times that occurred between sample collection and analysis during the 2015 groundwater, surface water, and reclaimed water quality characterization efforts regarding PPCPs, PFCs and metformin. Although EEA's laboratory method has no formalized hold times for these compounds, these hold times are longer than the 28 day analytical schedule EEA customarily utilizes for processing such samples. (Other parameters analyzed as part of the RWIS were almost all run within established formal hold times.) The full details of this issue are explained in a May, 16, 2016 memorandum by HDR.

Some of the reviewers of the draft Task 1 (Water Quality Characterization) technical memoranda have asked whether extended hold times for these compounds may have caused bias in the reported concentrations of PPCPs, PFCs and metformin. In response, EEA prepared information documenting that PFCs are very stable with hold times past 70 days (presented in the HDR May 16, 2016 memorandum). EEA also agreed to conduct a hold time study evaluating the effects of extending the hold times to 70 days for PPCPs and metformin. The methods and results of that study are presented in EEA's November 4, 2016 report, "Holding Time Study Results for PPCPs and Metformin, LOTT Clean Water Alliance Project," and the full analytical results are presented in an electronic spreadsheet. Both items are incorporated by reference to this memorandum.

Summary of Method

A full explanation of EEA's methods are presented in EEA's November 4, 2016 report. A brief description is below:

- Three Class A reclaimed water samples (each comprised of four 1-liter bottles with preservative) were collected at the Martin Way Reclaimed Water Plant on June 15, 2016. Upon receipt by EEA, the four bottles comprising each sample were composited so as to provide 4-liter sample volumes for each sample. These were then analyzed for PPCPs and metformin. Between 19 and 22 compounds were detected above the method detection limits in the three samples.
- One sample was then spiked on June 30, 2016, with a known concentration in the range of 1 to 4 parts per billion (ppb) for each of 98 compounds. Eleven replicates of the spiked sample were each run on LC-MS-MS instrumentation at 0, 2, 4, 7, 16, 30, 45, 60, 69 and 84 days after the spike. For each run, a 1 to 10 dilution was employed to ensure that the results were within the

range of the LOTT sample results and within the range of the calibration curve for the instrument.

- Two Laboratory Control Samples (LCS) were prepared using spiked reagent water and run for each of the periods specified above. The purpose of the LCS is to identify the range of variability in the method and instrument results.

Summary of Results

The results of the study indicate that 90 of the 98 compounds evaluated appear to remain stable throughout the 84 day period. Eight compounds appear to show evidence of degradation or analytical variability.

- Two compounds (metazachlor and metolachlor) begin to degrade after approximately two weeks. "R" data quality flags are recommended for samples analyzed after approximately two weeks indicating that the data are unreliable. An "R" flag indicates that, "The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified." (Ecology, 2016)[1].
- Four compounds (amoxicillin, azithromycin, cimetidine, and nonyl-phenol) show analytical variability on individual days and between days. Therefore, the results for those should be considered semi quantitative (i.e., concentration results are estimates). "J" data quality flags are recommended in the reports for all of the results for these compounds. A "J" flag indicates that, "The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample." (Ecology, 2016).
- Two compounds (nifedipine and theophyline) show concentrations consistently under or over the laboratory control sample (LCS) limits, but no evidence of inconsistent variability or degradation. This appears to be the result of a sample matrix effect or calibration artifact for this sample. "J" data quality flags are recommended for these two compounds.

Recommendations

The following recommendations are proposed for the technical memoranda documenting the 2015 groundwater, surface water and wastewater/reclaimed water sampling and water quality analysis.

- The EEA November 4, 2016 hold time study report will be included by reference into each of HDR's reports. The results will be summarized in the laboratory data validation section of each report.
- The laboratory data summary tables will be flagged as suggested by EEA (and as summarized above).
    - Because all metazachlor and metolachlor samples were analyzed past a two week hold time, all of the results for these two parameters will be assigned an "R" data quality flag.
    - All amoxicillin, azithromycin, cimetidine, nifedipine, nonyl-phenol and theophyline results will be assigned a "J" data quality flag. All of these chemicals (with the exception of theophyline, which was not included in the original list of analytes sampled for in wastewater and reclaimed water) were detected at least once in raw wastewater, while only nifedipine and nonyl-phenol were also detected in reclaimed water. None of these compounds were detected in any of the groundwater and surface water samples, with the exception of a detection of nonyl-phenol in one groundwater well.

[1] Source: http://www.ecy.wa.gov/programs/eap/mar_wat/datacodes.html.

    - All other data quality flags regarding hold times will be removed for PPCPs, PFCs and metformin from the summary tables in the report.
- Future PPCP, PFC and metformin analysis for the LOTT RWIS project will be run within a 28-day hold time from the date of sample collection.

eurofins | Eaton Analytical

November 4, 2016

To: John Koreny and Jeff Hansen, HDR Engineering, Inc.

From: Andy Eaton and Ali Haghani, Eurofins Eaton Analytical, Inc. (EEA)

cc: Vanessa Berry (EEA), Brad Cahoon (EEA), Daniel Lashbrook (EEA), Robert Dean (EEA)

Subject: Holding Time Study Results for PPCPs (EEA Method 9609 and Metformin), LOTT Clean Water Alliance Project

Introduction

A study was completed by Eurofins Eaton Analytical, Inc. (EEA) to determine the effects of holding preserved refrigerated water samples for a period of up to 84 days (12 weeks) prior to analysis using EEA's Method 9609 "Pharmaceuticals and Personal Care Products (PPCPs)" and Metformin. This study was completed as part of the LOTT Clean Water Alliance (LOTT) project evaluating the presence of PPCPs (also referred to by LOTT as Residual Chemicals) in surface water, groundwater and treated wastewater (reclaimed water) in the South Puget Sound area of Washington State. The reason for conducting the hold time study is that during the prior sampling of groundwater, surface water and reclaimed water, hold times were up to 10 weeks after sampling for the PPCP and Metformin laboratory analysis. The purpose of the hold time study is to examine the effects these extended hold times may have on the analytical results and to recommend whether data quality flags should be included in laboratory reporting.

The hold time study was completed by spiking one reclaimed water sample with a known concentration of the target PPCP compounds and performing 11 replicate analyses on the sample each at periods of 0, 2, 4, 7, 16, 30, 45, 60, 69, and 84 days.

The results of the study indicate that 92 out of the 98 compounds reported appear to remain stable through the length of the hold time study. Six compounds appear to show evidence of either degradation or analytical variability.

- Two compounds (metazachlor and metolachlor) begin to degrade after approximately 2 weeks. "R" data quality flags are recommended in the reports for all of the results for these compounds after degradation starts.

- Additionally, four compounds (amoxicillin, azithromycin, cimetidine, and nonyl-phenol) show analytical variability on individual days and between days; thus, results for those should be considered semi quantitative (results are estimates). "J" flags are recommended in the reports for all of the results for these compounds.

In addition, two compounds (nifedipine and theophyline) show concentrations consistently under or over the laboratory control sample (LCS) limits, but no evidence of inconsistent variability or degradation. This appears to be the result of a sample matrix effect or calibration artifact for this sample. ”J” flags are recommended in the reports for these compounds.

Methods

The methods used for the holding time study are summarized below.

- Three 4-liter grab samples were collected by HDR from the LOTT Martin Way Reclaimed Water Plant on June 15, 2016, using bottles provided by EEA, containing sodium omadine and ascorbic acid as preservatives. The samples were placed on ice and transmitted by next-day air delivery to EEA’s laboratory in Monrovia, California.

- The three 4-liter samples were received on June 16, 2016 and were each composited to create samples A, B and C. The three samples were analyzed using Liquid Chromatography-Tandem Mass Spectrometry (LC-MS-MS) as per the Method 9609 process on June 16 and for metformin on June 17, within 2 days of receipt, and retested the following week using high resolution mass spectrometry.

- All of the samples exhibited similar results. However, Sample A was chosen for the hold time study because it had fewer unknown peaks than the other two after looking at the full scan high resolution mass spectrometry data.

- EEA then prepared the spike sample on June 30, 2016, which was 15 days after the sample was collected. EEA spiked a 100 ml aliquot of Sample A with 1- 4 ppb of each target analyte and then transferred it to 5ml amber vials and stored refrigerated.

- The spiked Sample A was then run on the LC-MS-MS at periods of 0, 2, 4, 7, 16, 30, 45, 60, 69, and 84 days after spiking the sample on June 30, 2016. For each run, one of the vials was brought to room temperature, diluted 1/10 into 11 auto-sampler vials, the internal standard was added, and each vial analyzed. The 1/10 dilution ensured that all compounds would be within the range of the results for the LOTT study and within the range of the calibration curve (so multiple dilutions would not be required and the study could be completed within the allocated time period). Eleven replicates were analyzed on each day in order to provide a more robust understanding of the effects of hold times and analytical precision.

- With each batch we included two freshly prepared Laboratory Control Standards (LCS) consisting of reagent water spiked with the target analytes, to monitor instrument performance in the absence of matrix effects and holding time effects.

- Fresh calibration working stock standards (WSS) were prepared periodically, as noted below. Calibration stock preparation dates are indicated on the raw data worksheets. The original calibration standard was changed after 16 days because we started at that time to see changes in albuterol and we were not sure if it was the matrix or the WSS. After day 16 a fresh working stock standard was prepared for calibrations and the LCS for each analytical sequence to avoid any questions regarding calibration stability.

Results

Evaluation of Results

- Results are presented in the form of percent recoveries (i.e., with 100% reflecting the known spiked concentration). To facilitate analysis of the data for observing trends, all results were normalized to the day 0 recoveries by averaging all 11 of the day 0 recovery measurements (measurements made the same day as the sample was spiked) for each compound and comparing subsequent measurements to that average.

- To evaluate possible degradation, data were compared to both recovery ranges calculated from both the 20 LCS samples analyzed with these holding time samples and the limits set in the lab Laboratory Information Management System (LIMS) database for the LCS samples, which are based on longer term observed historical precision. Additionally, when the compounds were also included in EPA method 1694, results were reviewed against the limits found in that method, which are generally much wider than the EEA limits. Note that all of these limits are for reagent water and do not take into account any matrix effects expected from analyzing reclaimed water samples.

- In some cases data are missing for a particular analyte on some days because the calibration did not come out on that day for that compound or no peak was identified by the mass spectrometer. The causes for these aberrant data are not clear. These are shown as blanks in the tables and Excel workbook.

Presentation of Results

The project results are summarized in Tables 1 to 3. Table 1 includes the summary data (normalized against day 0) and the EEA conclusions regarding stability. Table 2 includes the LCS limits, as described below. Table 3 includes the raw data, as described below.

Also, the full analytical data package is provided electronically in the Excel workbook titled, “HDR-Lott project holding time study 20160929”. The Excel workbook has multiple tabs within it, including:

- Tab “raw data”: Raw data as percent recovery not normalized and normalized results compared to the average of day 0 recoveries and standard deviations and relative standard deviations of the 11 replicates on each day
- Tab “LCS Calculated Control Limits”: Upper and lower Laboratory Control Sample (LCS) control limits calculated from the 20 associated QC samples (LCS – spiked reagent water).
- Tab “Summary and Conclusions”: Summary of normalized data, LCS limits, and EEA conclusions on stability of each compound
- Tab “HDR Target List”: HDR target analyte list.
- Tab “1694 QC limits”: LCS limits found in EPA method 1694.
- Tab “Spiked levels”: Spiking levels for each compound for holding time study and concentration expected in samples when analyzed
- Tab “WSS recoveries over time”: Information on working stock standard recoveries reanalyzed on each day with the new WSS used for calibration on that analysis day to determine any potential problems with standard preparation on a given day.
- Tab “Rerun WSS day 0”: Ratio of working stock standard (WSS) from analysis day compared to initial day 0 WSS (based on the average of the LCS samples on day 0 which were prepared from the day 0 WSS). This is another way to determine if compounds in individual WSS might have been incorrectly prepared on a given day or even if the day 0 WSS had any preparation issues. Note that the primary stock standard diluted and used to prepare the WSS was not changed through the course of the study.
- Tab “Cal Tech and Internal standard”: Detailed information on calibration technique (internal standard calibration or external calibration) used for each compound, including the compound used as an internal standard for quantitation when the internal standard technique was used and the mix used for individual compounds, as preparing the 98 compounds required the use of 9 unique stock standard mixes.
- Tab “analysis of unspiked sample”. This shows the results for the original 3 samples of reclaimed water submitted for evaluation for use in the

spiking study. Because all samples had similar concentrations, sample MWRW-A was used for spiking.

Summary of Results

The results of the study indicate that 92 out of the 98 compounds reported appear to remain stable through the length of the hold time study. Six compounds appear to show evidence of either degradation or analytical variability.

- Two herbicides are clearly degrading over the course of the 84 day study (metazachlor and metolachlor). Both of these show significant degradation in this matrix within ~2 weeks. Metazachlor is almost completely gone, but metolachlor is still present after 84 days, but at only ~ 30% of the original concentration. Results for these two compounds should be flagged as “R”, rejected data, for samples analyzed after two weeks. Note that metolachlor was also included in the LOTT results provided using Method 525, but with higher reporting limits.

- Three compounds (cimetidine, amoxicillin, and nonyl-phenol) all showed poor precision during the study (and are normally considered semiquantitative by EEA) and results are inconclusive because of that and should be flagged with a “J”, as estimated results. No data are available for azithromycin because calibration results were poor, and it could not be included in the holding time study, so data for this compound should also be flagged with a “J”, as estimated results.

- In addition, two compounds (nifedipine and theophyline) show concentrations consistently under or over the laboratory control sample (LCS) limits, but no evidence of inconsistent variability or degradation. This appears to be the result of a sample matrix effect or calibration artifact for this sample. ”J” flags are recommended in the reports for these compounds.

Table 1. Summary Data and Conclusions

Working Stock Standard ID						WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16	EEA conclusions regarding stability					
Analytical Date						7/1/2016	7/3/2016	7/5/2016	7/8/2016	7/17/2016	7/31/2016	8/15/2016	8/30/2016	9/7/2016	9/21/2016						
Days Since Spike						0	2	4	7	16	30	45	60	69	84						
	EEA Method LCS Lower Limit (%)	EEA Method LCS Upper Limit (%)	Study LCS Lower Limit (%)	Study LCS Upper Limit (%)												Stable, Most Results Within LCS Limits During Full Study Period, Fully Quantitative Results, No QC Flag	Stable With Degradation Occuring After 2 Weeks, QC "R" QC Flag Results After Degradation Starts	Results Highly Variable, Semi-Quantitative, Recommend "J" QC Flag All Results as Estimates	Results Often Outside LCS Limits, But No Degradation or Extreme Variability (Possible Matrix or Calibration Artifact in HT study, J flag)		Comment
17 alpha ethynylestradiol - M-H					**Average**	89.2	88.3	89.3	88.5	82.3	77.2	99.3	110.7	127.5	95.1						
					Stdev	9.3	5.2	7.1	6.5	7.5	3.9	8.4	8.5	17.9	13.9						
	60	140	72	138	Normalized	100%	99%	100%	99%	92%	87%	111%	124%	143%	107%	x					
					% Rsd	10.4%	5.8%	7.9%	7.3%	9.1%	5.1%	8.5%	7.7%	14.0%	14.7%						
17B-Estradiol - M-H					**Average**	97.9	98.1	95.7	94.2	81.6	78.8	105.1	106.8	118.8	96.6						
					Stdev	4.7	2.9	2.2	10.5	7.9	3.7	7.0	6.7	14.9	7.6						
	60	140	72	140	Normalized	100%	100%	98%	96%	83%	81%	107%	109%	121%	99%	x					
					% Rsd	4.8%	2.9%	2.3%	11.1%	9.6%	4.7%	6.7%	6.2%	12.5%	7.9%						
2,4-D					**Average**	125.1	89.0	122.8	123.7	111.8	85.2	107.6	111.1	143.6	143.8						
					Stdev	15.0	10.1	10.3	10.7	11.5	6.1	10.1	8.0	17.9	19.1						
	60	140	54	141	Normalized	100%	71%	98%	99%	89%	68%	86%	89%	115%	115%	x					
					% Rsd	12.0%	11.3%	8.4%	8.7%	10.3%	7.2%	9.3%	7.2%	12.4%	13.3%						
4-tert-OctylphenoL					**Average**	84.5	120.9	122.5	129.7	63.5	81.4	127.5	109.6	104.4	97.6						
					Stdev	6.6	10.3	8.5	15.5	21.8	4.5	13.2	15.4	12.0	10.8						
	60	140	59	121	Normalized	100%	143%	145%	154%	75%	96%	151%	130%	124%	116%	x					
					% Rsd	7.8%	8.5%	7.0%	11.9%	34.3%	5.6%	10.4%	14.1%	11.5%	11.0%						
Acesulfame					**Average**	95.6	97.0	95.3	94.8	96.6	88.2	104.8	99.5	119.0	125.5						
					Stdev	6.3	6.4	8.2	9.4	3.1	5.3	6.9	5.5	3.2	7.7						
	60	140	93	110	Normalized	100%	101%	100%	99%	101%	92%	110%	104%	124%	131%	x					
					% Rsd	6.6%	6.6%	8.6%	9.9%	3.2%	6.0%	6.6%	5.5%	2.7%	6.1%						
Acetaminophen					**Average**	89.7	103.9	110.9	105.7	86.2	75.9	105.0	85.9	73.1	80.9						
					Stdev	10.6	15.4	7.1	15.0	13.1	8.6	7.8	8.9	8.5	5.7						
	60	140	84	113	Normalized	100%	116%	124%	118%	96%	85%	117%	96%	82%	90%	x					
					% Rsd	11.9%	14.8%	6.4%	14.2%	15.1%	11.3%	7.5%	10.3%	11.7%	7.0%						
Albuterol					**Average**	105.9	107.2	105.6	119.8	127.7	74.5	152.4	592.6	102.8	122.5						
					Stdev	10.2	6.4	19.1	18.9	16.4	22.6	22.3	206.9	15.8	14.1						
	60	140	24	156	Normalized	100%	101%	100%	113%	121%	70%	144%	560%	97%	116%	x					Working std problem on day 60
					% Rsd	9.6%	6.0%	18.1%	15.8%	12.9%	30.3%	14.7%	34.9%	15.4%	11.5%						

Working Stock Standard ID						WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16	EEA conclusions regarding stability					
Analytical Date						7/1/2016	7/3/2016	7/5/2016	7/8/2016	7/17/2016	7/31/2016	8/15/2016	8/30/2016	9/7/2016	9/21/2016						
Days Since Spike						0	2	4	7	16	30	45	60	69	84						
	EEA Method LCS Lower Limit (%)	EEA Method LCS Upper Limit (%)	Study LCS Lower Limit (%)	Study LCS Upper Limit (%)												Stable, Most Results Within LCS Limits During Full Study Period, Fully Quantitative Results, No QC Flag	Stable With Degradation Occuring After 2 Weeks, QC "R" QC Flag Results After Degradation Starts	Results Highly Variable, Semi-Quantitative, Recommend "J" QC Flag All Results as Estimates	Results Often Outside LCS Limits, But No Degradation or Extreme Variability (Possible Matrix or Calibration Artifact in HT study, J flag)		Comment
Amoxicilin					**Average**	32.5	28.8	38.3	35.5	310.2	101.2	408.7	678.3	682.7	604.5						
					Stdev	13.8	6.2	14.8	10.7	46.1	17.1	55.9	62.5	63.9	61.4						
	60	140	61	147	Normalized	100%	89%	118%	109%	953%	311%	1256%	2085%	2099%	1858%			x			Continuing WSS did not match day 0. Considered semi-quantitative
					% Rsd	42.4%	21.4%	38.6%	30.1%	14.9%	16.9%	13.7%	9.2%	9.4%	10.2%						
Andorostenedione					**Average**	68.9	61.4	65.0	72.7	85.4	49.8	78.7	91.1	87.7	101.1						
					Stdev	7.8	8.7	6.1	10.0	10.3	5.7	10.7	19.2	8.9	12.1						
	60	140	63	139	Normalized	100%	89%	94%	106%	124%	72%	114%	132%	127%	147%	x					
					% Rsd	11.3%	14.2%	9.3%	13.8%	12.0%	11.5%	13.6%	21.1%	10.1%	12.0%						
Atenolol					**Average**	47.3	38.0	39.4	47.4	40.9	33.7	46.7	69.2	56.9	51.7						
					Stdev	4.7	2.8	2.6	4.3	1.9	2.1	3.9	9.4	2.9	2.3						
	60	140	67	138	Normalized	100%	80%	83%	100%	86%	71%	99%	146%	120%	109%	x					
					% Rsd	10.0%	7.3%	6.7%	9.0%	4.6%	6.3%	8.4%	13.6%	5.1%	4.5%						
Atrazine					**Average**	72.7	72.1	71.9	66.7	85.1	65.3	73.5	63.4	85.4	76.6						
					Stdev	3.5	5.6	4.0	9.2	2.3	3.3	3.9	5.2	3.2	5.9						
	60	140	82	121	Normalized	100%	99%	99%	92%	117%	90%	101%	87%	117%	105%	x					
					% Rsd	4.9%	7.8%	5.5%	13.7%	2.7%	5.0%	5.3%	8.2%	3.8%	7.7%						
Azithromycin	60	140	not tested															x			Unable to get reliable calibration. Semi quant
Bendroflumethiazide - M-H					**Average**	171.0	170.4	174.8	166.0	102.5	261.8	125.3	114.9	137.3	112.2						
					Stdev	12.8	13.7	12.7	11.5	4.5	11.4	7.8	17.0	7.8	8.4						
	60	140	74	116	Normalized	100%	100%	102%	97%	60%	153%	73%	67%	80%	66%	x					Continuing WSS did not match day 0 WSS. Drop due to calibration issues
					% Rsd	7.5%	8.0%	7.3%	7.0%	4.4%	4.4%	6.2%	14.8%	5.7%	7.5%						
Bezafibrate					**Average**	166.9	166.4	163.2	179.4	137.7	145.4	206.4	177.0	188.9	185.4						
					Stdev	10.9	7.1	9.9	8.8	9.5	6.1	15.2	18.1	13.7	13.5						
	60	140	74	126	Normalized	100%	100%	98%	107%	82%	87%	124%	106%	113%	111%	x					
					% Rsd	6.5%	4.3%	6.1%	4.9%	6.9%	4.2%	7.3%	10.2%	7.3%	7.3%						
Bisphenol A					**Average**	101.8	94.6	95.2	97.0	89.8	72.8	97.1	104.4	98.2	93.4						
					Stdev	10.7	2.3	3.2	6.8	4.4	3.4	3.4	21.5	3.6	3.4						
	60	140	90	110	Normalized	100%	93%	94%	95%	88%	72%	95%	103%	96%	92%	x					
					% Rsd	10.5%	2.5%	3.3%	7.0%	4.9%	4.7%	3.5%	20.6%	3.6%	3.7%						
Bromacil					**Average**	132.8	129.8	135.1	145.0	111.3	131.0	163.6	118.4	133.4	142.3						

Working Stock Standard ID						WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16	EEA conclusions regarding stability				
Analytical Date						7/1/2016	7/3/2016	7/5/2016	7/8/2016	7/17/2016	7/31/2016	8/15/2016	8/30/2016	9/7/2016	9/21/2016					
Days Since Spike						0	2	4	7	16	30	45	60	69	84					
	EEA Method LCS Lower Limit (%)	EEA Method LCS Upper Limit (%)	Study LCS Lower Limit (%)	Study LCS Upper Limit (%)												Stable, Most Results Within LCS Limits During Full Study Period, Fully Quantitative Results, No QC Flag	Stable With Degradation Occuring After 2 Weeks, QC "R" QC Flag Results After Degradation Starts	Results Highly Variable, Semi-Quantitative, Recommend "J" QC Flag All Results as Estimates	Results Often Outside LCS Limits, But No Degradation or Extreme Variability (Possible Matrix or Calibration Artifact in HT study, J flag)	Comment
					Stdev	9.5	10.1	9.5	13.1	9.0	6.3	9.3	21.1	10.4	13.6					
	60	140	79	111	Normalized	100%	98%	102%	109%	84%	99%	123%	89%	100%	107%	x				
					% Rsd	7.2%	7.8%	7.0%	9.0%	8.1%	4.8%	5.7%	17.8%	7.8%	9.5%					
Clofibric acid					**Average**	131.7	134.6	124.7	131.4	124.3	101.8	126.7	103.1	118.9	124.9					
					Stdev	4.9	5.5	3.7	4.7	8.7	4.8	5.1	6.1	19.8	7.5					
	60	140	75	129	Normalized	100%	102%	95%	100%	94%	77%	96%	78%	90%	95%	x				
					% Rsd	3.7%	4.1%	3.0%	3.6%	7.0%	4.7%	4.1%	5.9%	16.6%	6.0%					
Butalbital					**Average**	106.0	113.7	114.4	134.8	120.6	112.7	122.4	133.4	141.3	137.2					
					Stdev	8.4	9.4	7.3	10.7	6.8	4.6	10.3	40.1	11.7	9.6					
	60	140	75	116	Normalized	100%	107%	108%	127%	114%	106%	115%	126%	133%	129%	x				
					% Rsd	7.9%	8.2%	6.4%	7.9%	5.7%	4.1%	8.5%	30.1%	8.3%	7.0%					
Butylparaben-NEG					**Average**	96.5	98.0	96.9	98.1	92.1	98.1	121.0	106.6	146.0	115.6					
					Stdev	3.3	3.5	2.8	7.4	3.1	4.3	4.4	3.8	16.9	4.3					
	60	140	68	129	Normalized	100%	102%	100%	102%	95%	102%	125%	110%	151%	120%	x				WSS bias on day 69.
					% Rsd	3.4%	3.6%	2.9%	7.5%	3.4%	4.3%	3.7%	3.5%	11.6%	3.7%					
Caffeine					**Average**	99.2	110.2	110.2	99.4	98.1	94.2	105.4	120.8	112.2	111.1					
					Stdev	23.5	30.2	19.8	26.9	33.6	29.1	37.3	52.9	19.5	37.9					
	60	140	86	121	Normalized	100%	111%	111%	100%	99%	95%	106%	122%	113%	112%	x				
					% Rsd	23.7%	27.4%	18.0%	27.0%	34.3%	30.9%	35.4%	43.8%	17.3%	34.1%					
Carbadox					**Average**	107.8	104.2	103.7	99.1	106.8	84.3	110.6	121.8	120.7	130.1					
					Stdev	10.4	10.0	11.5	15.5	7.6	14.0	12.1	14.7	22.2	20.4					
	60	140	61	140	Normalized	100%	97%	96%	92%	99%	78%	103%	113%	112%	121%	x				
					% Rsd	9.7%	9.6%	11.1%	15.7%	7.1%	16.6%	10.9%	12.1%	18.4%	15.6%					
Carbamazepine					**Average**	129.4	126.7	128.2	130.6	121.1	96.0	120.6	124.4	132.9	128.6					
					Stdev	4.5	3.7	5.5	10.1	7.2	4.3	4.9	6.4	5.8	6.2					
	60	140	81	118	Normalized	100%	98%	99%	101%	94%	74%	93%	96%	103%	99%	x				
					% Rsd	3.5%	2.9%	4.3%	7.8%	5.9%	4.5%	4.1%	5.2%	4.4%	4.8%					
Carisoprodol					**Average**	115.1	126.0	140.6	142.5	101.9	184.6	185.4	100.1	143.8	151.1					
					Stdev	17.6	21.2	29.8	28.8	15.0	156.5	68.0	31.8	16.0	24.7					
	60	140	53	139	Normalized	100%	109%	122%	124%	89%	160%	161%	87%	125%	131%	x				
					% Rsd	15.3%	16.9%	21.2%	20.2%	14.7%	84.8%	36.7%	31.8%	11.1%	16.3%					
Chloramphenicol_M-H					**Average**	104.4	102.6	97.7	101.7	106.6	86.0	102.9	77.4	98.3	97.9					
					Stdev	6.9	5.7	7.8	9.0	9.0	6.9	7.6	3.9	11.2	9.5					
	60	140	66	134	Normalized	100%	98%	94%	97%	102%	82%	99%	74%	94%	94%	x				
					% Rsd	6.6%	5.6%	8.0%	8.8%	8.5%	8.1%	7.4%	5.0%	11.4%	9.7%					

Working Stock Standard ID						WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16	EEA conclusions regarding stability				
Analytical Date						7/1/2016	7/3/2016	7/5/2016	7/8/2016	7/17/2016	7/31/2016	8/15/2016	8/30/2016	9/7/2016	9/21/2016					
Days Since Spike						0	2	4	7	16	30	45	60	69	84					
	EEA Method LCS Lower Limit (%)	EEA Method LCS Upper Limit (%)	Study LCS Lower Limit (%)	Study LCS Upper Limit (%)												Stable, Most Results Within LCS Limits During Full Study Period, Fully Quantitative Results, No QC Flag	Stable With Degradation Occuring After 2 Weeks, QC "R" QC Flag Results After Degradation Starts	Results Highly Variable, Semi-Quantitative, Recommend "J" QC Flag All Results as Estimates	Results Often Outside LCS Limits, But No Degradation or Extreme Variability (Possible Matrix or Calibration Artifact in HT study, J flag)	Comment
Chloridazon					**Average**	82.1	80.0	91.5	92.0	72.4	86.5	111.0	91.2	118.4	130.9					
					Stdev	9.4	7.7	10.4	8.7	24.1	7.3	11.4	9.5	8.9	16.7					
	60	140	75	120	Normalized	100%	97%	111%	112%	88%	105%	135%	111%	144%	159%	x				Positive bias in day 69 and 84 WSS
					% Rsd	11.5%	9.6%	11.3%	9.5%	33.3%	8.5%	10.3%	10.4%	7.5%	12.7%					
Chlorotoluron					**Average**	98.8	94.3	100.9	104.5	95.7	102.2	142.1	121.7	143.9	139.0					
					Stdev	6.2	5.0	4.8	10.0	4.5	5.4	7.9	10.3	9.4	9.6					
	60	140	75	123	Normalized	100%	95%	102%	106%	97%	103%	144%	123%	146%	141%	x				No obvious reason for increase in results.
					% Rsd	6.3%	5.3%	4.8%	9.6%	4.7%	5.2%	5.5%	8.4%	6.5%	6.9%					
Cimetidine - PRM					**Average**	39.2	52.9	33.6	108.2	18.9	no data	17.2	no data	35.2	14.5					
					Stdev	3.3	3.8	3.8	7.5	5.9	no data	4.5	no data	6.9	3.3					
	60	140	71	133	Normalized	100%	135%	86%	276%	48%	no data	44%	no data	90%	37%			x		Difficult to calibrate-semi-quant.
					% Rsd	8.5%	7.2%	11.4%	6.9%	31.3%	no data	26.3%	no data	19.5%	22.5%					
Cotinine - PRM					**Average**	113.3	115.1	127.6	96.6	100.5	84.7	97.3	116.8	115.2	123.3					
					Stdev	8.7	6.3	11.5	6.7	8.7	11.7	7.5	23.6	9.5	12.7					
	60	140	75	120	Normalized	100%	102%	113%	85%	89%	75%	86%	103%	102%	109%	x				
					% Rsd	7.7%	5.5%	9.0%	6.9%	8.6%	13.8%	7.8%	20.2%	8.2%	10.3%					
Cyanazine					**Average**	73.9	75.6	74.1	72.6	54.6	64.0	70.8	50.3	70.7	67.7					
					Stdev	3.5	2.4	2.7	5.1	45.8	3.3	3.8	28.5	4.4	3.3					
	60	140	88	112	Normalized	100%	102%	100%	98%	74%	87%	96%	68%	96%	92%	x				
					% Rsd	4.7%	3.2%	3.7%	7.0%	84.0%	5.2%	5.4%	56.6%	6.3%	4.9%					
DACT					**Average**	179.2	156.5	208.0	174.0	158.0	185.1	197.4	215.3	142.9	199.2					
					Stdev	26.4	33.1	31.4	30.0	19.9	26.7	33.8	63.9	18.3	23.4					
	60	140	61	128	Normalized	100%	87%	116%	97%	88%	103%	110%	120%	80%	111%	x				
					% Rsd	14.8%	21.1%	15.1%	17.3%	12.6%	14.4%	17.1%	29.7%	12.8%	11.7%					
DEA					**Average**	92.8	88.7	97.1	106.9	73.0	64.8	101.2	67.2	96.3	131.5					
					Stdev	18.0	15.8	12.3	28.6	16.3	12.2	16.9	17.7	10.8	45.0					
	60	140	86	117	Normalized	100%	96%	105%	115%	79%	70%	109%	72%	104%	142%	x				No obvious cause for day 84 change.
					% Rsd	19.4%	17.8%	12.6%	26.8%	22.4%	18.8%	16.7%	26.3%	11.2%	34.2%					
DEET					**Average**	80.7	79.3	83.1	86.2	85.0	77.1	91.5	85.4	81.1	84.3					
					Stdev	4.6	4.9	3.8	5.0	3.5	4.4	6.6	8.7	4.5	3.9					
	60	140	76	117	Normalized	100%	98%	103%	107%	105%	96%	113%	106%	101%	105%	x				
					% Rsd	5.7%	6.2%	4.5%	5.8%	4.1%	5.8%	7.2%	10.2%	5.5%	4.7%					

Working Stock Standard ID						WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16	EEA conclusions regarding stability				
Analytical Date						7/1/2016	7/3/2016	7/5/2016	7/8/2016	7/17/2016	7/31/2016	8/15/2016	8/30/2016	9/7/2016	9/21/2016					
Days Since Spike						0	2	4	7	16	30	45	60	69	84					
	EEA Method LCS Lower Limit (%)	EEA Method LCS Upper Limit (%)	Study LCS Lower Limit (%)	Study LCS Upper Limit (%)												Stable, Most Results Within LCS Limits During Full Study Period, Fully Quantitative Results, No QC Flag	Stable With Degradation Occuring After 2 Weeks, QC "R" QC Flag Results After Degradation Starts	Results Highly Variable, Semi-Quantitative, Recommend "J" QC Flag All Results as Estimates	Results Often Outside LCS Limits, But No Degradation or Extreme Variability (Possible Matrix or Calibration Artifact in HT study, J flag)	Comment
Dehydronifedipine					**Average**	89.8	80.3	79.9	81.2	80.4	72.5	77.7	75.4	93.3	90.9					
					Stdev	4.5	5.0	6.0	5.2	6.9	4.0	4.6	4.5	6.3	3.7					
	60	140	82	127	Normalized	100%	89%	89%	90%	90%	81%	87%	84%	104%	101%	x				
					% Rsd	5.0%	6.2%	7.6%	6.4%	8.6%	5.5%	5.9%	6.0%	6.8%	4.1%					
DIA					**Average**	84.1	91.2	86.1	86.6	81.8	77.8	99.4	88.7	98.3	96.7					
					Stdev	12.0	8.9	10.1	18.6	11.0	9.6	9.3	12.1	9.5	15.0					
	60	140	90	111	Normalized	100%	108%	102%	103%	97%	92%	118%	105%	117%	115%	x				
					% Rsd	14.3%	9.7%	11.7%	21.4%	13.4%	12.3%	9.4%	13.7%	9.7%	15.5%					
Diazepam					**Average**	87.2	89.6	87.4	89.2	83.8	83.1	91.3	92.8	107.0	114.2					
					Stdev	3.2	1.7	4.5	5.6	4.2	4.2	3.9	7.5	5.8	4.4					
	60	140	86	116	Normalized	100%	103%	100%	102%	96%	95%	105%	106%	123%	131%	x				
					% Rsd	3.7%	1.9%	5.2%	6.3%	5.0%	5.0%	4.3%	8.1%	5.4%	3.8%					
Diclofenac- M-H					**Average**	96.3	99.5	100.4	101.4	94.4	77.2	105.7	102.8	127.4	104.2					
					Stdev	3.1	5.3	6.0	7.0	6.5	4.8	9.5	3.3	15.2	7.2					
	60	140	68	141	Normalized	100%	103%	104%	105%	98%	80%	110%	107%	132%	108%	x				
					% Rsd	3.2%	5.3%	6.0%	6.9%	6.9%	6.2%	9.0%	3.3%	11.9%	6.9%					
Dilantin - M-H					**Average**	96.0	90.8	89.5	96.5	109.0	82.1	105.2	93.0	131.9	104.3					
					Stdev	7.5	5.2	6.6	11.0	11.0	4.4	12.3	7.0	15.9	7.8					
	60	140	55	119	Normalized	100%	94%	93%	101%	114%	85%	109%	97%	137%	109%	x				
					% Rsd	7.8%	5.7%	7.4%	11.4%	10.1%	5.3%	11.7%	7.5%	12.1%	7.5%					
Diltiazem					**Average**	179.7	200.8	205.9	229.4	128.8	180.4	163.9	121.6	137.1	126.0					
					Stdev	9.7	12.8	9.0	10.1	9.7	10.9	12.6	12.0	13.1	6.9					
	60	140	74	126	Normalized	100%	112%	115%	128%	72%	100%	91%	68%	76%	70%	x				Continuing WSS did not match day 0; decrease is a calibration issue.
					% Rsd	5.4%	6.4%	4.4%	4.4%	7.5%	6.0%	7.7%	9.9%	9.6%	5.5%					
Diuron					**Average**	94.8	96.6	88.8	89.2	88.6	86.2	100.3	103.0	120.3	98.7					
					Stdev	2.2	3.3	3.6	4.8	4.1	2.2	3.6	4.3	12.6	4.5					
	60	140	75	131	Normalized	100%	102%	94%	94%	93%	91%	106%	109%	127%	104%	x				
					% Rsd	2.3%	3.4%	4.1%	5.4%	4.7%	2.6%	3.6%	4.2%	10.5%	4.6%					
Erythromycin					**Average**	110.2	171.3	147.0	161.8	78.5	203.2	144.8	96.3	103.1	82.0					
					Stdev	7.8	11.1	17.5	17.4	5.8	9.0	8.5	7.3	15.3	6.8					
	60	140	64	137	Normalized	100%	155%	133%	147%	71%	184%	131%	87%	94%	74%	x				Continuing WSS did not match day 0; drop is a Calibration issue
					% Rsd	7.1%	6.5%	11.9%	10.8%	7.5%	4.4%	5.9%	7.5%	14.9%	8.3%					

Working Stock Standard ID						WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16	EEA conclusions regarding stability				
Analytical Date						7/1/2016	7/3/2016	7/5/2016	7/8/2016	7/17/2016	7/31/2016	8/15/2016	8/30/2016	9/7/2016	9/21/2016					
Days Since Spike						0	2	4	7	16	30	45	60	69	84					
	EEA Method LCS Lower Limit (%)	EEA Method LCS Upper Limit (%)	Study LCS Lower Limit (%)	Study LCS Upper Limit (%)												Stable, Most Results Within LCS Limits During Full Study Period, Fully Quantitative Results, No QC Flag	Stable With Degradation Occuring After 2 Weeks, QC "R" QC Flag Results After Degradation Starts	Results Highly Variable, Semi-Quantitative, Recommend "J" QC Flag All Results as Estimates	Results Often Outside LCS Limits, But No Degradation or Extreme Variability (Possible Matrix or Calibration Artifact in HT study, J flag)	Comment
Estrone					**Average**	107.8	102.4	106.3	127.7	95.0	82.9	96.6	104.0	112.3	90.1					
					Stdev	8.3	7.4	9.2	9.3	10.8	5.8	12.7	18.3	13.0	7.4					
	60	140	75	124	Normalized	100%	95%	99%	118%	88%	77%	90%	97%	104%	84%	x				
					% Rsd	7.7%	7.2%	8.7%	7.3%	11.4%	7.0%	13.2%	17.6%	11.6%	8.2%					
Ethylparaben					**Average**	105.5	107.5	106.3	108.3	100.1	110.4	112.5	110.2	149.1	123.4					
					Stdev	2.1	2.5	1.8	16.6	6.4	10.1	4.0	5.3	15.5	4.8					
	60	140	70	132	Normalized	100%	102%	101%	103%	95%	105%	107%	104%	141%	117%	x				Day 69 WSS biased high.
					% Rsd	2.0%	2.3%	1.7%	15.3%	6.4%	9.2%	3.6%	4.9%	10.4%	3.9%					
Flumequine					**Average**	107.9	104.8	103.7	108.6	97.2	96.5	107.1	119.0	131.6	138.8					
					Stdev	6.4	6.5	7.7	12.3	9.1	5.5	6.4	14.4	9.2	11.2					
	60	140	80	121	Normalized	100%	97%	96%	101%	90%	89%	99%	110%	122%	129%	x				
					% Rsd	5.9%	6.2%	7.5%	11.3%	9.4%	5.7%	6.0%	12.1%	7.0%	8.0%					
Fluoxetine					**Average**	150.2	178.7	207.9	217.5	67.0	195.4	76.0	87.7	85.3	86.8					
					Stdev	10.8	40.1	36.2	34.4	3.8	24.7	11.7	17.5	13.4	14.2					
	60	140	59	146	Normalized	100%	119%	138%	145%	45%	130%	51%	58%	57%	58%	x				Continuing WSS did not match day 0; drop is a calibration issue.
					% Rsd	7.2%	22.4%	17.4%	15.8%	5.6%	12.6%	15.4%	19.9%	15.7%	16.3%					
Gemfibrozil					**Average**	114.0	114.9	118.1	113.9	114.7	64.6	84.7	85.8	137.7	188.6					
					Stdev	6.5	3.9	3.6	8.7	28.0	3.6	4.0	15.7	4.9	22.0					
	60	140	68	137	Normalized	100%	101%	104%	100%	101%	57%	74%	75%	121%	165%	x				High bias on day 69 and 84 WSS.
					% Rsd	5.7%	3.4%	3.0%	7.7%	24.4%	5.6%	4.7%	18.3%	3.5%	11.6%					
Ibuprofen					**Average**	99.8	101.6	95.6	98.3	84.4	86.2	102.4	111.6	142.4	112.1					
					Stdev	3.2	2.2	3.3	6.8	10.3	3.4	4.1	5.5	15.5	3.5					
	60	140	62	140	Normalized	100%	102%	96%	98%	85%	86%	103%	112%	143%	112%	x				
					% Rsd	3.2%	2.2%	3.4%	6.9%	12.3%	4.0%	4.1%	5.0%	10.9%	3.1%					
Iohexol - M+H					**Average**	87.8	84.1	83.7	84.5	66.7	83.0	76.0	102.8	130.1	112.7					
					Stdev	15.8	10.8	12.7	16.1	6.4	9.4	7.3	9.8	27.7	11.6					
	60	140	72	158	Normalized	100%	96%	95%	96%	76%	95%	87%	117%	148%	128%	x				
					% Rsd	18.0%	12.8%	15.2%	19.1%	9.6%	11.3%	9.6%	9.6%	21.3%	10.3%					
Iopromide - PRM					**Average**	97.1	78.8	73.5	95.2	79.4	74.4	68.7	79.5	95.0	98.3					
					Stdev	7.3	11.5	9.1	17.7	12.2	7.0	8.5	26.3	9.5	8.9					
	60	140	59	164	Normalized	100%	81%	76%	98%	82%	77%	71%	82%	98%	101%	x				
					% Rsd	7.5%	14.6%	12.4%	18.6%	15.4%	9.4%	12.4%	33.1%	10.0%	9.1%					
Isobuylparaben					**Average**	96.5	98.0	97.0	98.0	92.0	98.2	121.0	106.7	146.0	115.4					

Working Stock Standard ID						WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16	EEA conclusions regarding stability				
Analytical Date						7/1/2016	7/3/2016	7/5/2016	7/8/2016	7/17/2016	7/31/2016	8/15/2016	8/30/2016	9/7/2016	9/21/2016					
Days Since Spike						0	2	4	7	16	30	45	60	69	84					
	EEA Method LCS Lower Limit (%)	EEA Method LCS Upper Limit (%)	Study LCS Lower Limit (%)	Study LCS Upper Limit (%)												Stable, Most Results Within LCS Limits During Full Study Period, Fully Quantitative Results, No QC Flag	Stable With Degradation Occuring After 2 Weeks, QC "R" QC Flag Results After Degradation Starts	Results Highly Variable, Semi-Quantitative, Recommend "J" QC Flag All Results as Estimates	Results Often Outside LCS Limits, But No Degradation or Extreme Variability (Possible Matrix or Calibration Artifact in HT study, J flag)	Comment
					Stdev	3.3	3.5	2.8	7.4	3.1	4.3	4.5	3.8	16.9	4.2					
	60	140	68	129	Normalized	100%	102%	100%	102%	95%	102%	125%	111%	151%	120%	x				Day 69 WSS biased high.
					% Rsd	3.4%	3.6%	2.9%	7.5%	3.4%	4.3%	3.7%	3.5%	11.6%	3.6%					
Isoproturon					**Average**	109.4	100.4	97.2	97.2	113.9	98.6	106.7	94.3	117.9	122.1					
					Stdev	6.0	3.6	6.1	7.1	11.2	6.4	5.1	5.6	5.9	7.7					
	60	140	83	129	Normalized	100%	92%	89%	89%	104%	90%	98%	86%	108%	112%	x				
					% Rsd	5.5%	3.6%	6.3%	7.3%	9.8%	6.5%	4.8%	6.0%	5.0%	6.3%					
Ketoprofen					**Average**	75.8	69.7	62.2	74.1	82.4	54.0	65.9	76.4	79.0	80.4					
					Stdev	4.1	4.8	5.2	6.9	5.8	3.9	6.1	6.5	4.3	6.4					
	60	140	67	125	Normalized	100%	92%	82%	98%	109%	71%	87%	101%	104%	106%	x				
					% Rsd	5.4%	6.8%	8.4%	9.3%	7.0%	7.2%	9.3%	8.6%	5.5%	8.0%					
Ketorolac					**Average**	70.0	65.4	63.3	70.1	76.4	48.2	59.4	61.1	70.2	79.8					
					Stdev	5.5	4.6	4.1	5.2	9.3	4.1	4.0	6.7	4.3	5.7					
	60	140	70	129	Normalized	100%	94%	90%	100%	109%	69%	85%	87%	100%	114%	x				
					% Rsd	7.9%	7.0%	6.5%	7.3%	12.2%	8.4%	6.8%	10.9%	6.1%	7.1%					
Lidocaine					**Average**	100.3	102.2	95.8	116.9	96.3	77.3	106.1	91.0	74.4	100.2					
					Stdev	7.7	5.6	6.6	10.0	10.0	6.4	10.0	13.0	5.8	8.1					
	60	140	73	143	Normalized	100%	102%	96%	116%	96%	77%	106%	91%	74%	100%	x				
					% Rsd	7.7%	5.5%	6.8%	8.6%	10.4%	8.3%	9.4%	14.3%	7.8%	8.1%					
Lincomycin					**Average**	101.2	119.2	128.4	144.3	102.0	128.5	101.9	140.5	122.1	127.5					
					Stdev	18.5	25.8	20.9	26.4	15.0	18.6	11.8	22.9	14.0	11.5					
	60	140	55	153	Normalized	100%	118%	127%	143%	101%	127%	101%	139%	121%	126%	x				
					% Rsd	18.3%	21.7%	16.2%	18.3%	14.7%	14.5%	11.6%	16.3%	11.4%	9.0%					
Linuron					**Average**	90.9	88.3	91.2	85.7	82.5	75.3	91.3	105.0	139.2	107.1					
					Stdev	2.6	2.9	2.9	7.1	3.6	3.7	4.2	4.1	16.1	4.6					
	60	140	72	134	Normalized	100%	97%	100%	94%	91%	83%	100%	115%	153%	118%	x				day 69 WSS biased high
					% Rsd	2.9%	3.3%	3.1%	8.2%	4.4%	4.9%	4.6%	3.9%	11.6%	4.3%					
Lopressor-Metoprolol					**Average**	113.7	115.1	108.3	109.5	102.7	95.3	127.9	122.0	123.4	119.4					
					Stdev	6.5	4.8	6.1	8.6	5.7	5.5	5.8	9.9	15.3	8.0					
	60	140	78	141	Normalized	100%	101%	95%	96%	90%	84%	112%	107%	109%	105%	x				
					% Rsd	5.7%	4.2%	5.6%	7.8%	5.6%	5.8%	4.5%	8.1%	12.4%	6.7%					
Meclofenamic Acid					**Average**	96.3	96.9	99.7	102.3	94.5	77.1	105.7	102.8	127.4	104.3					
					Stdev	3.1	5.4	6.1	7.7	6.5	4.7	9.5	3.3	15.2	7.2					
	60	140	67	142	Normalized	100%	101%	103%	106%	98%	80%	110%	107%	132%	108%	x				

Working Stock Standard ID						WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16	EEA conclusions regarding stability					
Analytical Date						7/1/2016	7/3/2016	7/5/2016	7/8/2016	7/17/2016	7/31/2016	8/15/2016	8/30/2016	9/7/2016	9/21/2016						
Days Since Spike						0	2	4	7	16	30	45	60	69	84						
	EEA Method LCS Lower Limit (%)	EEA Method LCS Upper Limit (%)	Study LCS Lower Limit (%)	Study LCS Upper Limit (%)												Stable, Most Results Within LCS Limits During Full Study Period, Fully Quantitative Results, No QC Flag	Stable With Degradation Occuring After 2 Weeks, QC "R" QC Flag Results After Degradation Starts	Results Highly Variable, Semi-Quantitative, Recommend "J" QC Flag All Results as Estimates	Results Often Outside LCS Limits, But No Degradation or Extreme Variability (Possible Matrix or Calibration Artifact in HT study, J flag)		Comment
					% Rsd	3.2%	5.6%	6.1%	7.5%	6.9%	6.1%	9.0%	3.3%	11.9%	6.9%						
Meprobamate					**Average**	98.9	95.5	109.3	89.3	96.1	202.6	74.8	80.7	78.7	55.8						
					Stdev	15.9	19.4	24.7	25.4	21.6	38.0	15.7	15.7	10.0	15.1						
	60	140	76	144	Normalized	100%	97%	110%	90%	97%	205%	76%	82%	80%	56%	x					
					% Rsd	16.1%	20.3%	22.6%	28.4%	22.5%	18.8%	21.1%	19.5%	12.7%	27.1%						
Metazachlor					**Average**	70.7	64.2	52.2	52.1	35.5	15.6	9.7	4.7	4.5	-2.1						
					Stdev	4.0	2.3	2.7	4.8	3.2	1.1	0.7	0.9	0.7	0.3						
	60	140	76	131	Normalized	100%	91%	74%	74%	50%	22%	14%	7%	6%	-3%		x				degrades significantly in matrix after 15 days
					% Rsd	5.6%	3.6%	5.1%	9.1%	9.0%	7.3%	7.7%	18.5%	16.6%	-11.9%						
Metformin					**Average**	156.8	135.4	163.9	160.8	142.8	138.7	138.1	111.7	129.3	165.0						
					Stdev	26.6	21.4	38.2	38.0	15.4	23.6	18.2	30.5	18.7	19.1						
	60	140	58	143	Normalized	100%	86%	105%	103%	91%	88%	88%	71%	82%	105%	x					
					% Rsd	16.9%	15.8%	23.3%	23.6%	10.8%	17.0%	13.2%	27.3%	14.5%	11.6%						
Methylparaben - M-H					**Average**	124.3	124.2	115.7	119.4	117.2	113.6	141.3	122.4	159.2	118.5						
					Stdev	5.0	10.0	9.6	14.1	7.7	6.5	8.9	5.1	17.0	9.6						
	60	140	65	135	Normalized	100%	100%	93%	96%	94%	91%	114%	98%	128%	95%	x					
					% Rsd	4.0%	8.1%	8.3%	11.8%	6.6%	5.7%	6.3%	4.2%	10.7%	8.1%						
Metolachlor					**Average**	90.5	85.6	81.2	77.0	58.2	42.5	38.5	26.4	26.0	17.8						
					Stdev	4.7	3.1	2.8	5.1	2.6	2.0	1.9	1.8	1.3	0.9						
	60	140	89	114	Normalized	100%	95%	90%	85%	64%	47%	42%	29%	29%	20%		x				degrades after 15 days, but still present
					% Rsd	5.2%	3.7%	3.5%	6.6%	4.5%	4.6%	5.0%	6.8%	4.8%	5.1%						
Naproxen					**Average**	124.7	116.6	115.5	116.8	103.7	95.8	122.5	131.5	138.5	123.9						
					Stdev	5.2	6.3	8.4	12.1	9.6	6.8	13.3	8.6	19.9	13.3						
	60	140	75	127	Normalized	100%	94%	93%	94%	83%	77%	98%	105%	111%	99%	x					
					% Rsd	4.2%	5.4%	7.3%	10.3%	9.2%	7.1%	10.9%	6.5%	14.4%	10.8%						
Nifedipine					**Average**	106.1	123.9	125.7	165.0	157.8	103.9	180.5	142.5	260.0	137.6						
					Stdev	4.2	5.2	6.7	14.1	10.6	5.1	11.5	8.7	25.0	7.6						
	60	140	8	122	Normalized	100%	117%	118%	156%	149%	98%	170%	134%	245%	130%	x				x	Variability in WSS.
					% Rsd	3.9%	4.2%	5.3%	8.5%	6.7%	5.0%	6.4%	6.1%	9.6%	5.5%						
Nonyl-phenol					**Average**	117.1	216.6	235.2	284.6	84.0	172.7	210.5	144.8	161.0	138.5						
					Stdev	5.9	20.6	23.5	28.6	10.3	16.9	21.6	25.4	10.3	21.0						
	60	140	48	143	Normalized	100%	185%	201%	243%	72%	148%	180%	124%	138%	118%	x		x			Variability in WSS - semi quantitative.

Working Stock Standard ID						WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16	EEA conclusions regarding stability				
Analytical Date						7/1/2016	7/3/2016	7/5/2016	7/8/2016	7/17/2016	7/31/2016	8/15/2016	8/30/2016	9/7/2016	9/21/2016					
Days Since Spike						0	2	4	7	16	30	45	60	69	84					
	EEA Method LCS Lower Limit (%)	EEA Method LCS Upper Limit (%)	Study LCS Lower Limit (%)	Study LCS Upper Limit (%)												Stable, Most Results Within LCS Limits During Full Study Period, Fully Quantitative Results, No QC Flag	Stable With Degradation Occuring After 2 Weeks, QC "R" QC Flag Results After Degradation Starts	Results Highly Variable, Semi-Quantitative, Recommend "J" QC Flag All Results as Estimates	Results Often Outside LCS Limits, But No Degradation or Extreme Variability (Possible Matrix or Calibration Artifact in HT study, J flag)	Comment
					% Rsd	5.1%	9.5%	10.0%	10.1%	12.3%	9.8%	10.3%	17.6%	6.4%	15.2%					
Norethisterone					**Average**	90.9	93.6	84.6	105.9	102.6	76.4	98.9	125.6	94.7	104.0					
					Stdev	8.5	5.0	6.5	20.1	15.9	6.4	7.0	52.3	8.4	8.1					
	60	140	72	146	Normalized	100%	103%	93%	117%	113%	84%	109%	138%	104%	114%	x				
					% Rsd	9.4%	5.3%	7.7%	18.9%	15.5%	8.4%	7.1%	41.6%	8.8%	7.8%					
Oxolinic Acid					**Average**	88.5	113.2	105.4	104.9	117.4	97.0	120.6	130.9	125.7	136.5					
					Stdev	7.1	5.1	11.1	10.3	13.0	6.3	6.6	9.5	8.7	7.2					
	60	140	71	145	Normalized	100%	128%	119%	119%	133%	110%	136%	148%	142%	154%	x				
					% Rsd	8.0%	4.5%	10.5%	9.8%	11.0%	6.5%	5.5%	7.3%	6.9%	5.3%					
Paraxanthine					**Average**	56.1	46.8	44.0	42.9	56.9	57.4	76.8	77.5	80.7	76.7					
					Stdev	6.5	4.3	4.6	7.5	4.9	9.1	8.0	21.7	8.5	12.2					
	60	140	70	120	Normalized	100%	83%	78%	76%	101%	102%	137%	138%	144%	137%	x				
					% Rsd	11.7%	9.1%	10.5%	17.6%	8.5%	15.9%	10.4%	28.0%	10.6%	15.9%					
Pentoxifylline					**Average**	61.2	80.5	71.2	70.2	74.7	56.1	92.4	63.3	76.3	74.2					
					Stdev	6.2	9.6	9.4	10.3	11.2	7.5	5.1	14.0	8.7	9.6					
	60	140	72	144	Normalized	100%	132%	116%	115%	122%	92%	151%	103%	125%	121%	x				
					% Rsd	10.2%	12.0%	13.3%	14.7%	15.0%	13.4%	5.5%	22.1%	11.4%	13.0%					
Phenazone					**Average**	110.8	115.4	113.6	109.2	115.4	86.9	118.0	92.1	87.9	102.7					
					Stdev	7.3	8.2	9.2	11.0	10.9	6.8	8.3	14.8	5.7	11.2					
	60	140	67	147	Normalized	100%	104%	102%	98%	104%	78%	106%	83%	79%	93%	x				
					% Rsd	6.6%	7.1%	8.1%	10.0%	9.4%	7.8%	7.1%	16.0%	6.5%	10.9%					
Primidone					**Average**	42.9	54.3	46.9	59.0	42.8	29.7	43.9	66.5	28.5	53.5					
					Stdev	10.4	7.4	4.0	8.3	9.2	6.2	8.0	11.3	3.9	7.7					
	60	140	64	146	Normalized	100%	126%	109%	138%	100%	69%	102%	155%	66%	125%	x				
					% Rsd	24.3%	13.6%	8.6%	14.1%	21.6%	20.8%	18.1%	17.1%	13.8%	14.4%					
Progesterone					**Average**	95.7	92.0	87.5	112.3	86.1	74.1	113.8	103.5	100.7	93.6					
					Stdev	9.2	8.2	8.9	11.3	6.6	6.9	12.1	12.6	7.9	10.1					
	60	140	71	143	Normalized	100%	96%	91%	117%	90%	77%	119%	108%	105%	98%	x				
					% Rsd	9.6%	8.9%	10.2%	10.1%	7.7%	9.2%	10.6%	12.2%	7.8%	10.8%					
Propazine					**Average**	95.9	91.6	86.8	87.9	96.2	79.1	91.4	89.3	118.1	99.7					
					Stdev	5.0	4.2	6.8	12.5	14.2	7.0	6.9	12.3	6.3	7.1					
	60	140	75	137	Normalized	100%	96%	90%	92%	100%	82%	95%	93%	123%	104%	x				
					% Rsd	5.2%	4.6%	7.9%	14.3%	14.7%	8.9%	7.5%	13.7%	5.3%	7.2%					
Propylparaben					**Average**	97.4	96.6	94.7	101.4	97.9	103.6	120.1	112.6	152.0	130.0					
					Stdev	2.4	3.5	3.6	6.9	6.1	3.0	3.8	8.0	16.4	7.3					

Working Stock Standard ID						WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16	EEA conclusions regarding stability					
Analytical Date						7/1/2016	7/3/2016	7/5/2016	7/8/2016	7/17/2016	7/31/2016	8/15/2016	8/30/2016	9/7/2016	9/21/2016						
Days Since Spike						0	2	4	7	16	30	45	60	69	84						
	EEA Method LCS Lower Limit (%)	EEA Method LCS Upper Limit (%)	Study LCS Lower Limit (%)	Study LCS Upper Limit (%)												Stable, Most Results Within LCS Limits During Full Study Period, Fully Quantitative Results, No QC Flag	Stable With Degradation Occuring After 2 Weeks, QC "R" QC Flag Results After Degradation Starts	Results Highly Variable, Semi-Quantitative, Recommend "J" QC Flag All Results as Estimates	Results Often Outside LCS Limits, But No Degradation or Extreme Variability (Possible Matrix or Calibration Artifact in HT study, J flag)		Comment
	60	140	68	136	Normalized	100%	99%	97%	104%	101%	106%	123%	116%	156%	133%	x					High bias in WSS from day 69.
					% Rsd	2.5%	3.6%	3.8%	6.8%	6.3%	2.9%	3.2%	7.1%	10.8%	5.6%						
Quinoline					**Average**	95.3	83.2	79.9	86.6	79.4	70.7	87.7	95.0	108.9	84.2						
					Stdev	8.4	5.3	6.3	7.7	3.8	7.1	4.1	7.4	6.1	4.5						
	60	140	85	115	Normalized	100%	87%	84%	91%	83%	74%	92%	100%	114%	88%	x					
					% Rsd	8.8%	6.4%	7.9%	8.8%	4.8%	10.0%	4.6%	7.8%	5.6%	5.4%						
Simazine					**Average**	108.0	115.8	106.6	101.8	98.5	96.8	111.1	99.1	107.5	115.1						
					Stdev	4.6	6.4	3.4	9.1	6.7	4.8	4.9	4.4	7.0	5.2						
	60	140	87	109	Normalized	100%	107%	99%	94%	91%	90%	103%	92%	100%	107%	x					
					% Rsd	4.3%	5.5%	3.2%	8.9%	6.8%	4.9%	4.4%	4.4%	6.5%	4.5%						
Sucralose - M-H					**Average**	209.8	162.6	143.6	146.2	164.7	150.9	257.6	167.2	180.1	232.2						
					Stdev	26.8	31.3	19.3	25.0	25.1	30.3	12.9	50.1	45.5	43.4						
	60	140	90	114	Normalized	100%	78%	68%	70%	79%	72%	123%	80%	86%	111%	x					
					% Rsd	12.8%	19.3%	13.5%	17.1%	15.2%	20.1%	5.0%	29.9%	25.2%	18.7%						
Sulfachloropyridazine					**Average**	25.2	27.9	30.3	19.5	45.3	23.6	33.8	21.9	49.3	28.1						
					Stdev	8.9	11.2	9.1	4.1	10.1	8.9	7.5	6.8	7.3	5.4						
	60	140	65	133	Normalized	100%	111%	120%	78%	180%	94%	134%	87%	196%	112%	x					
					% Rsd	35.4%	40.1%	30.1%	20.7%	22.4%	37.6%	22.2%	31.1%	14.8%	19.1%						
Sulfadiazine					**Average**	96.2	109.6	100.2	76.8	59.7	86.0	126.9	108.3	132.2	86.0						
					Stdev	20.3	55.0	36.8	26.2	27.5	36.0	48.6	14.4	21.8	23.6						
	60	140	85	121	Normalized	100%	114%	104%	80%	62%	89%	132%	113%	137%	89%	x					
					% Rsd	21.2%	50.2%	36.8%	34.2%	46.0%	41.9%	38.3%	13.3%	16.5%	27.4%						
Sulfadimethoxine					**Average**	108.8	126.0	126.3	112.1	100.4	86.3	90.9	78.3	117.9	107.6						
					Stdev	11.0	12.5	14.3	18.9	11.1	2.9	7.9	5.1	12.1	12.0						
	60	140	65	137	Normalized	100%	116%	116%	103%	92%	79%	84%	72%	108%	99%	x					
					% Rsd	10.1%	9.9%	11.3%	16.8%	11.0%	3.4%	8.7%	6.5%	10.3%	11.2%						
Sulfamerazine					**Average**	115.9	113.1	97.3	118.3	120.5	116.8	104.3	90.4	104.2	104.3						
					Stdev	32.5	36.1	27.0	42.3	40.6	47.7	60.5	31.5	40.0	53.2						
	60	140	71	135	Normalized	100%	98%	84%	102%	104%	101%	90%	78%	90%	90%	x					
					% Rsd	28.0%	31.9%	27.8%	35.8%	33.7%	40.8%	58.0%	34.9%	38.4%	51.0%						
Sulfamethazine					**Average**	124.3	124.6	128.0	96.6	138.6	131.6	118.0	90.9	89.3	133.6						
					Stdev	33.5	38.1	59.2	31.9	58.2	35.9	27.9	37.3	62.0	38.7						
	60	140	71	137	Normalized	100%	100%	103%	78%	112%	106%	95%	73%	72%	107%	x					
					% Rsd	26.9%	30.6%	46.2%	33.0%	42.0%	27.3%	23.6%	41.1%	69.5%	28.9%						
Sulfamethizole					**Average**	230.9	207.3	214.2	167.5	287.5	293.8	263.8	220.4	186.4	183.2						

Working Stock Standard ID						WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16	EEA conclusions regarding stability				
Analytical Date						7/1/2016	7/3/2016	7/5/2016	7/8/2016	7/17/2016	7/31/2016	8/15/2016	8/30/2016	9/7/2016	9/21/2016					
Days Since Spike						0	2	4	7	16	30	45	60	69	84					
	EEA Method LCS Lower Limit (%)	EEA Method LCS Upper Limit (%)	Study LCS Lower Limit (%)	Study LCS Upper Limit (%)												Stable, Most Results Within LCS Limits During Full Study Period, Fully Quantitative Results, No QC Flag	Stable With Degradation Occuring After 2 Weeks, QC "R" QC Flag Results After Degradation Starts	Results Highly Variable, Semi-Quantitative, Recommend "J" QC Flag All Results as Estimates	Results Often Outside LCS Limits, But No Degradation or Extreme Variability (Possible Matrix or Calibration Artifact in HT study,J flag)	Comment
					Stdev	40.5	46.7	42.5	34.5	38.7	46.0	46.3	68.4	76.9	87.6					
	60	140	76	115	Normalized	100%	90%	93%	73%	125%	127%	114%	95%	81%	79%	x				
					% Rsd	17.5%	22.5%	19.8%	20.6%	13.4%	15.7%	17.5%	31.0%	41.2%	47.8%					
Sulfamethoxazole					**Average**	88.8	90.3	88.9	88.2	87.3	65.1	82.6	84.3	90.2	89.2					
					Stdev	11.1	12.8	9.9	13.6	14.2	6.3	12.6	9.6	6.3	11.6					
	60	140	93	108	Normalized	100%	102%	100%	99%	98%	73%	93%	95%	102%	100%	x				
					% Rsd	12.5%	14.2%	11.2%	15.4%	16.2%	9.7%	15.2%	11.4%	7.0%	13.0%					
Sulfathiazole					**Average**	70.2	67.8	60.4	70.7	67.8	54.0	57.9	85.8	105.2	80.7					
					Stdev	9.2	7.5	7.4	15.2	10.4	11.0	16.1	13.7	14.0	15.3					
	60	140	62	133	Normalized	100%	97%	86%	101%	97%	77%	82%	122%	150%	115%	x				
					% Rsd	13.1%	11.1%	12.3%	21.5%	15.4%	20.4%	27.7%	16.0%	13.3%	18.9%					
Sulfometuron methyl					**Average**	54.2	46.9	50.1	42.9	54.7	46.1	56.7	60.1	82.1	85.3					
					Stdev	3.4	3.2	3.8	2.7	4.0	2.9	3.9	10.6	6.7	3.3					
	60	140	65	122	Normalized	100%	86%	92%	79%	101%	85%	104%	111%	151%	157%	x				High bias in some WSS.
					% Rsd	6.4%	6.8%	7.6%	6.2%	7.2%	6.3%	6.8%	17.6%	8.2%	3.9%					
TCEP					**Average**	65.5	72.1	68.7	67.5	48.0	49.1	65.9	81.2	87.4	103.6					
					Stdev	8.4	5.4	5.1	5.4	7.4	7.1	23.3	4.9	9.6	8.9					
	60	140	71	124	Normalized	100%	110%	105%	103%	73%	75%	101%	124%	134%	158%	x				
					% Rsd	12.8%	7.5%	7.5%	8.1%	15.3%	14.4%	35.4%	6.0%	11.0%	8.6%					
TCPP					**Average**	88.3	96.1	95.2	106.3	135.2	100.2	143.6	185.9	201.9	101.8					
					Stdev	7.1	7.6	7.4	13.9	22.3	13.3	13.9	212.8	36.7	7.8					
	40	160	18	203	Normalized	100%	109%	108%	120%	153%	113%	163%	210%	228%	115%	x				
					% Rsd	8.0%	7.9%	7.8%	13.1%	16.5%	13.3%	9.7%	114.5%	18.2%	7.7%					
TDCPP - PRM					**Average**	77.9	55.4	64.9	57.2	53.4	43.6	44.0	70.4	70.1	47.2					
					Stdev	10.9	6.5	6.6	17.8	6.7	5.4	4.5	10.1	7.7	6.8					
	40	160	26	171	Normalized	100%	71%	83%	73%	69%	56%	56%	90%	90%	61%	x				
					% Rsd	14.0%	11.8%	10.1%	31.1%	12.6%	12.4%	10.1%	14.4%	11.0%	14.4%					
Testosterone					**Average**	103.0	105.5	103.2	106.5	81.1	82.1	88.2	111.2	99.5	81.4					
					Stdev	7.9	8.7	7.7	6.6	5.8	5.4	5.5	17.8	6.2	3.2					
	60	140	71	127	Normalized	100%	102%	100%	103%	79%	80%	86%	108%	97%	79%	x				
					% Rsd	7.6%	8.3%	7.4%	6.2%	7.2%	6.6%	6.2%	16.0%	6.2%	4.0%					
Theobromine					**Average**	60.1	70.9	70.4	80.2	79.2	81.5	79.8	125.9	111.1	120.5					
					Stdev	10.5	13.8	18.4	18.3	12.1	12.7	34.0	159.3	8.9	12.9					
	60	140	55	139	Normalized	100%	118%	117%	133%	132%	135%	133%	209%	185%	200%	x				
					% Rsd	17.5%	19.5%	26.1%	22.7%	15.3%	15.6%	42.6%	126.5%	8.0%	10.7%					

Working Stock Standard ID						WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16	EEA conclusions regarding stability					
Analytical Date						7/1/2016	7/3/2016	7/5/2016	7/8/2016	7/17/2016	7/31/2016	8/15/2016	8/30/2016	9/7/2016	9/21/2016						
Days Since Spike						0	2	4	7	16	30	45	60	69	84						
	EEA Method LCS Lower Limit (%)	EEA Method LCS Upper Limit (%)	Study LCS Lower Limit (%)	Study LCS Upper Limit (%)												Stable, Most Results Within LCS Limits During Full Study Period, Fully Quantitative Results, No QC Flag	Stable With Degradation Occuring After 2 Weeks, QC "R" QC Flag Results After Degradation Starts	Results Highly Variable, Semi-Quantitative, Recommend "J" QC Flag All Results as Estimates	Results Often Outside LCS Limits, But No Degradation or Extreme Variability (Possible Matrix or Calibration Artifact in HT study, J flag)		Comment
Theophyline					**Average**	40.9	49.8	70.0	38.5	84.0	185.3	236.2	263.0	132.9	165.7						
					Stdev	10.6	13.4	12.2	11.2	18.6	36.2	77.4	103.9	13.9	15.4						
	60	140	56	132	Normalized	100%	122%	171%	94%	205%	453%	577%	643%	325%	405%	x			x		WSS high bias after day 0 WSS.
					% Rsd	25.8%	27.0%	17.5%	29.2%	22.1%	19.5%	32.8%	39.5%	10.5%	9.3%						
Thiabendazole					**Average**	85.6	92.1	97.7	98.4	98.0	35.0	100.6	82.1	102.7	96.1						
					Stdev	8.4	7.6	5.3	8.0	5.5	2.3	5.4	7.4	4.2	6.2						
	60	140	81	119	Normalized	100%	108%	114%	115%	114%	41%	118%	96%	120%	112%	x					
					% Rsd	9.8%	8.3%	5.4%	8.2%	5.7%	6.6%	5.4%	9.0%	4.1%	6.4%						
Triclocarban					**Average**	130.3	109.1	103.3	112.9	66.8	59.2	82.3	58.0	89.5	56.9						
					Stdev	8.8	5.7	6.1	4.7	4.9	4.4	9.3	5.1	13.1	5.5						
	60	140	61	148	Normalized	100%	84%	79%	87%	51%	45%	63%	45%	69%	44%	x					Continuing WSS did not match day 0 WSS, decrease due to calibration.
					% Rsd	6.8%	5.2%	5.9%	4.2%	7.4%	7.4%	11.4%	8.8%	14.6%	9.6%						
Triclosan					**Average**	113.1	121.0	111.4	151.4	90.4	104.8	130.5	100.3	139.0	100.3						
					Stdev	3.5	3.9	3.8	4.3	4.8	6.9	6.8	5.2	13.8	5.6						
	60	140	33	131	Normalized	100%	107%	99%	134%	80%	93%	115%	89%	123%	89%	x					
					% Rsd	3.1%	3.2%	3.4%	2.8%	5.3%	6.5%	5.2%	5.2%	9.9%	5.6%						
Trimethoprim					**Average**	90.8	85.4	91.3	87.7	84.1	69.4	88.7	94.3	94.0	93.2						
					Stdev	4.9	4.7	8.6	9.6	7.0	4.4	9.1	5.9	7.4	3.2						
	60	140	82	116	Normalized	100%	94%	101%	97%	93%	77%	98%	104%	104%	103%	x					
					% Rsd	5.4%	5.5%	9.5%	10.9%	8.3%	6.4%	10.3%	6.3%	7.9%	3.4%						
Warfarin					**Average**	124.8	126.6	126.8	135.7	115.8	118.7	171.1	145.5	193.7	154.4						
					Stdev	3.7	5.0	6.6	5.7	5.7	5.5	14.5	7.2	22.2	15.0						
	60	140	50	128	Normalized	100%	101%	102%	109%	93%	95%	137%	117%	155%	124%	x					
					% Rsd	3.0%	3.9%	5.2%	4.2%	4.9%	4.6%	8.5%	5.0%	11.4%	9.7%						

Table 2. Laboratory Control Sample Results

Sample	Working Stock Standard ID Analytical Date Days Since Spike Compound	WSS 06-30-16 7/1/2016 0	WSS 06-30-16 7/3/2016 2	WSS 06-30-16 7/5/2016 4	WSS 06-30-16 7/8/2016 7	WSS 07-15-16 7/17/2016 16	WSS-07-25-16 7/31/2016 30	WSS 08-15-16 8/15/2016 45	WSS 08-29-16 8/30/2016 60	WSS 09-07-16 9/7/2016 69	WSS-09-21-16 9/21/2016 84	Average	St. Dev.	3x St. Dev.	Lower Control Limit (Average Minus 3x St. Dev.)	Upper Control Limit (Average Plus 3x St. Dev.)
LCS1	17alpha ethynylestradiol - M-H	105.9	103.1	98.3	108.8	96.2	103.4	96.3	102.5	127.1	86.5	105.3	11.0	33.0	72.3	138.3
LCS2	17alpha ethynylestradiol - M-H	96.2	98.7	96.7	101.8	108.0	118.0	109.6	126.0	124.4	99.4					
LCS1	17B-Estradiol - M-H	109.1	101.2	101.8	105.3	92.6	100.5	103.3	105.1	121.3	92.0	105.7	11.3	33.8	71.9	139.5
LCS2	17B-Estradiol - M-H	102.2	100.3	92.8	111.0	105.0	99.5	111.4	126.1	136.3	97.3					
LCS1	2,4-D	102.7	66.8	98.9	103.5	96.5	94.5	98.4	98.2	128.8	90.6	97.1	14.5	43.4	53.7	140.5
LCS2	2,4-D	97.3	62.8	90.3	98.8	96.9	98.4	101.1	104.3	121.7	91.7					
LCS1	4-tert-OctylphenoL	84.9	86.8	79.9	112.2	87.7	88.2	82.5	100.6	109.2	90.4	90.2	10.4	31.1	59.1	121.3
LCS2	4-tert-OctylphenoL	68.8	89.5	82.9	101.2	90.3	78.5	87.5	98.3	95.7	88.9					
LCS1	Acesulfame	98.2	100.5	99.9	109.7	104.3	100.2	99.1	103.0	99.2	102.6	101.5	3.0	8.9	92.5	110.4
LCS2	Acesulfame	100.2	99.7	102.6	106.3	99.9	101.7	103.4	98.6	97.3	102.6					
LCS1	Acetaminophen	93.4	101.7	101.8	104.2	96.5	96.9	95.7	100.7	101.4	89.1	98.2	4.8	14.5	83.7	112.8
LCS2	Acetaminophen	90.4	99.9	97.8	101.3	106.5	96.7	96.7	102.9	101.4	89.6					
LCS1	Albuterol	79.2	117.8	85.9	99.3	122.7	91.9	96.8		61.2	63.0	89.8	21.9	65.8	24.0	155.6
LCS2	Albuterol	88.4	101.9	73.1	105.0	98.6	64.0	134.3		70.0	62.9					
LCS1	Amoxicilin	95.6	102.6	98.0	100.5	75.2	104.5	98.9	98.2	122.9	88.6	103.9	14.2	42.6	61.3	146.6
LCS2	Amoxicilin	97.5	106.2	100.1	110.2	128.8	92.6	113.4	99.6	139.8	105.7					
LCS1	Andorostenedione	126.5	88.7	99.5	114.6	92.0	96.9	128.1	97.8	95.2	109.6	101.0	12.7	38.2	62.7	139.2
LCS2	Andorostenedione	100.0	86.9	87.2	100.5	123.8	93.4	98.3	95.5	91.8	93.4					
LCS1	Atenolol	123.8	94.4	107.2	118.1	89.6	76.6	100.6	107.6	100.6	107.8	102.4	11.8	35.4	67.0	137.8
LCS2	Atenolol	118.5	98.3	107.0	113.8	98.0	98.7	87.1	101.5	88.2	110.6					
LCS1	Atrazine	97.3	112.2	99.6	109.5	97.8	98.0	95.2	92.4	100.1	102.2	101.6	6.6	19.8	81.8	121.4
LCS2	Atrazine	105.9	101.3	100.9	102.2	113.7	97.1	105.9	86.8	106.1	107.1					
LCS1	Bendroflumethiazide - M-H	103.7	97.3	97.7	107.3	83.7	94.2	90.2	99.3	85.0	103.9	94.6	7.0	21.1	73.6	115.7
LCS2	Bendroflumethiazide - M-H	94.4	91.2	95.4	106.2	89.7	90.1	93.8	93.9	83.0	92.6					
LCS1	Bezafibrate	96.4	92.9	98.8	106.8	87.9	92.4	85.6	98.3	106.7	112.3	100.0	8.8	26.4	73.6	126.4
LCS2	Bezafibrate	96.0	102.6	103.5	118.7	98.0	92.1	107.1	96.6	113.7	93.0					
LCS1	Bisphenol A	101.7	100.4	98.1	109.4	99.9	98.5	100.1	100.1	97.6	95.6	100.3	3.4	10.1	90.3	110.4
LCS2	Bisphenol A	101.0	102.2	103.3	106.1	101.4	98.2	101.0	99.9	95.9	96.0					
LCS1	Bromacil	99.4	92.0	94.8	101.9	88.7	92.7	101.0	83.9	91.7	98.1	95.2	5.4	16.2	79.0	111.5
LCS2	Bromacil	97.2	97.1	98.2	98.7	85.5	92.3	104.2	92.7	93.5	101.0					
LCS1	Clofibric acid	105.0	101.1	98.2	99.7	97.7	99.7	94.9	95.7	132.8	92.8	102.0	9.0	27.1	74.9	129.2
LCS2	Clofibric acid	102.2	100.0	94.6	93.8	99.4	98.7	103.6	107.8	115.1	107.7					
LCS1	Butalbital	100.4	99.2	103.3	111.9	85.6	93.0	91.5	90.6	94.9	88.7	95.5	6.7	20.2	75.3	115.6
LCS2	Butalbital	92.9	103.2	98.6	105.3	96.2	90.6	88.9	94.7	90.2	90.3					
LCS1	Butylparaben-NEG	98.2	94.8	101.5	96.5	88.9	96.0	93.8	99.6	124.3	96.4	98.7	10.1	30.4	68.2	129.1
LCS2	Butylparaben-NEG	95.8	91.6	87.1	97.6	95.1	84.7	103.1	113.9	120.3	94.6					
LCS1	Caffeine	99.6	98.1	99.3	114.8	104.3	99.9	103.2	92.4	102.3	101.6	103.6	5.9	17.6	86.0	121.2
LCS2	Caffeine	106.5	100.8	104.7	115.6	112.1	101.3	104.8	96.4	105.6	108.1					
LCS1	Carbadox	109.5	91.6	100.0	107.6	87.8	73.5	101.0	99.3	141.8	95.2	100.4	13.0	39.1	61.3	139.6
LCS2	Carbadox	101.0	93.7	99.5	102.8	96.2	94.3	95.0	109.9	112.9	96.1					
LCS1	Carbamazepine	96.5	95.1	105.9	112.5	103.4	93.9	100.4	96.6	105.8	90.1	99.3	6.2	18.5	80.7	117.8
LCS2	Carbamazepine	103.8	98.1	99.8	102.6	105.8	98.8	97.9	85.1	99.2	94.5					
LCS1	Carisoprodol	98.6	101.6	107.3	117.7	103.0	106.5	81.2	100.3	98.6	127.6	95.8	14.4	43.1	52.7	138.8
LCS2	Carisoprodol	94.5	79.6	91.1	80.3	110.8	85.9	75.6	97.7	79.8	77.7					
LCS1	Chloramphenicol_M-H	99.8	103.5	89.5	108.2	92.2	101.0	103.5	104.7	128.3	103.5	100.1	11.3	33.9	66.2	134.0
LCS2	Chloramphenicol_M-H	82.0	91.7	82.6	96.4	100.7	93.8	102.1	110.9	118.3	89.0					
LCS1	Chloridazon	101.7	98.9	102.7	106.5	88.7	94.8	94.2	88.4	97.1	108.0	97.9	7.5	22.5	75.4	120.4
LCS2	Chloridazon	92.9	99.5	101.0	98.4	85.6	94.4	102.2	89.5	96.7	116.9					

Sample	Working Stock Standard ID Analytical Date Days Since Spike Compound	WSS 06-30-16 7/1/2016 0	WSS 06-30-16 7/3/2016 2	WSS 06-30-16 7/5/2016 4	WSS 06-30-16 7/8/2016 7	WSS 07-15-16 7/17/2016 16	WSS-07-25-16 7/31/2016 30	WSS 08-15-16 8/15/2016 45	WSS 08-29-16 8/30/2016 60	WSS 09-07-16 9/7/2016 69	WSS-09-21-16 9/21/2016 84	Average	St. Dev.	3x St. Dev.	Lower Control Limit (Average Minus 3x St. Dev.)	Upper Control Limit (Average Plus 3x St. Dev.)
LCS1	Chlorotoluron	105.7	97.3	95.2	108.5	84.7	94.4	92.6	99.4	92.3	107.8	99.3	8.0	24.0	75.3	123.3
LCS2	Chlorotoluron	112.0	99.0	103.4	113.5	91.6	91.5	105.8	102.0	88.7	101.3					
LCS1	Cimetidine - PRM	119.0	109.2	105.7	99.2	79.3		103.7	103.5	120.3	104.2	101.9	10.4	31.2	70.7	133.2
LCS2	Cimetidine - PRM	96.7	111.8	96.7	101.4	103.9		82.7	104.4	99.8	93.2					
LCS1	Cotinine - PRM	94.7	99.2	106.4	115.5	101.7	91.9	100.7	98.6	103.4	89.6	97.7	7.5	22.5	75.2	120.2
LCS2	Cotinine - PRM	90.3	98.5	105.9	104.3	96.3	89.6	94.7	93.7	97.0	81.9					
LCS1	Cyanazine	99.0	98.7	100.5	109.5	101.4	101.2	96.9	102.6	98.9	97.7	99.9	3.9	11.7	88.2	111.6
LCS2	Cyanazine	94.9	99.0	98.7	104.7	99.2	95.2	103.0	92.7	98.4	105.6					
LCS1	DACT	104.0	104.4	98.5	110.8	87.8	99.3	107.2	99.1	97.9	115.7	94.7	11.2	33.6	61.1	128.3
LCS2	DACT	89.0	83.9	89.3	91.3	96.0	92.7	82.8	97.0	72.9	74.3					
LCS1	DEA	100.2	105.9	104.2	107.8	96.5	97.8	96.2	102.0	96.6	109.8	101.2	5.2	15.6	85.6	116.8
LCS2	DEA	98.7	106.1	103.1	101.2	95.5	93.2	106.9	95.4	97.1	109.7					
LCS1	DEET	104.6	109.6	103.8	110.2	93.8	96.1	93.0	88.0	94.8	100.2	96.3	6.8	20.5	75.8	116.8
LCS2	DEET	95.1	94.8	98.4	100.3	96.6	90.7	91.8	87.3	86.1	91.3					
LCS1	Dehydronifedipine	107.2	94.0	96.4	110.1	96.9	96.9	114.0	100.1	100.2	96.4	104.3	7.5	22.5	81.8	126.8
LCS2	Dehydronifedipine	122.8	100.9	107.1	109.7	110.4	108.3	107.4	94.8	105.9	107.2					
LCS1	DIA	100.1	101.2	101.3	109.2	98.9	101.9	99.5	102.5	95.7	98.8	100.4	3.5	10.6	89.7	111.0
LCS2	DIA	94.3	103.1	103.0	101.5	99.8	102.1	100.6	103.5	93.8	96.5					
LCS1	Diazepam	99.5	102.3	100.8	111.5	92.8	98.1	96.9	98.9	99.6	105.1	101.1	4.9	14.8	86.3	115.9
LCS2	Diazepam	101.4	106.5	102.1	107.0	97.1	99.1	95.0	105.3	94.7	108.5					
LCS1	Diclofenac- M-H	98.5	98.1	98.7	104.8	92.2	97.7	100.1	108.2	137.3	105.6	104.3	12.2	36.7	67.6	141.1
LCS2	Diclofenac- M-H	97.2	96.1	97.9	101.8	98.4	100.3	104.2	104.7	139.1	105.4					
LCS1	Dilantin - M-H	82.5	95.1	87.8	104.5	79.0	81.1	95.1	102.5	97.2	97.9	86.8	10.6	31.7	55.1	118.5
LCS2	Dilantin - M-H	75.8	81.1	77.1	86.8	69.9	68.9	98.7	82.3	80.9	92.4					
LCS1	Diltiazem	107.8	84.2	106.9	106.4	92.9	96.7	92.4	88.9	95.3	112.7	100.1	8.6	25.7	74.3	125.8
LCS2	Diltiazem	108.0	94.0	103.5	117.2	103.2	94.2	94.2	101.6	94.5	107.3					
LCS1	Diuron	111.4	100.0	100.1	105.7	92.0	98.1	97.6	101.5	127.1	98.1	102.8	9.3	27.8	75.1	130.6
LCS2	Diuron	100.9	100.8	91.5	105.7	95.5	97.3	99.0	111.6	123.3	99.2					
LCS1	Erythromycin	97.7	78.4	99.4	91.0	104.0	95.4	82.8	95.0	120.4	108.5	100.8	12.1	36.3	64.5	137.0
LCS2	Erythromycin	100.3	85.2	96.8	108.7	118.5	96.8	96.2	110.7	123.9	105.5					
LCS1	Estrone	96.3	97.9	100.9	111.9	103.5	97.2	87.2	110.6	88.6	98.6	99.7	8.1	24.4	75.3	124.0
LCS2	Estrone	104.4	95.3	100.5	111.9	97.4	95.0	99.6	101.8	112.3	82.8					
LCS1	Ethylparaben	100.2	93.3	93.7	100.2	90.9	98.5	93.0	103.5	130.1	94.8	101.1	10.4	31.3	69.7	132.4
LCS2	Ethylparaben	96.1	92.1	95.4	104.0	98.4	93.3	105.9	117.1	121.0	99.8					
LCS1	Flumequine	97.6	91.9	92.0	109.6	95.4	93.4	96.2	98.6	112.4	94.6	100.4	6.9	20.7	79.7	121.0
LCS2	Flumequine	105.0	98.8	103.1	105.4	100.8	95.9	104.7	91.0	112.4	108.6					
LCS1	Fluoxetine	110.8	97.3	108.1	113.4	95.6	97.8	67.3	97.8	101.1	99.0	102.5	14.4	43.2	59.3	145.8
LCS2	Fluoxetine	113.7	111.9	109.7	106.4	97.1	113.8	70.3	116.4	95.5	127.9					
LCS1	Gemfibrozil	104.6	101.7	105.6	101.2	108.8	93.8	98.6	99.5	83.4	111.6	102.2	11.5	34.6	67.6	136.8
LCS2	Gemfibrozil	107.5	101.3	100.7	108.3	139.8	92.5	107.9	97.4	87.5	93.1					
LCS1	Ibuprofen	100.2	106.8	94.1	103.0	87.0	100.1	91.8	102.5	135.6	91.5	100.6	13.0	38.9	61.7	139.5
LCS2	Ibuprofen	100.1	97.9	93.0	107.7	80.4	96.2	95.8	107.2	129.6	91.4					
LCS1	Iohexol - M+H	132.2	95.6	100.1	117.6	85.6	108.8	103.2	120.7	138.5	107.9	114.6	14.3	42.9	71.7	157.5
LCS2	Iohexol - M+H	127.7	115.0	126.2	117.0	113.4	97.1	102.4	127.4	132.1	124.3					
LCS1	Iopromide - PRM	103.0	93.1	102.8	110.3	94.3	86.0	108.9	88.7	103.1	87.3	111.2	17.4	52.3	58.9	163.5
LCS2	Iopromide - PRM	127.1	136.0	136.6	131.5	131.3	111.7	123.7	95.2	123.3	130.2					
LCS1	Isobuylparaben	98.2	94.9	101.7	96.5	88.8	96.0	93.8	99.7	124.3	96.3	98.7	10.2	30.5	68.2	129.1
LCS2	Isobuylparaben	95.8	91.7	87.1	97.5	95.0	84.8	103.1	113.9	120.3	94.5					
LCS1	isoproturon	101.4	108.7	98.2	109.9	99.8	97.1	106.3	98.9	106.7	96.1	105.9	7.6	22.8	83.1	128.8
LCS2	isoproturon	121.7	111.6	113.3	111.8	116.9	103.3	113.3	92.4	106.1	105.1					
LCS1	Ketoprofen	95.4	101.7	94.9	115.3	108.2	93.2	104.8	100.3	103.3	105.6	95.9	9.5	28.6	67.3	124.5

Sample	Compound	Working Stock Standard ID Analytical Date Days Since Spike	WSS 06-30-16 7/1/2016 0	WSS 06-30-16 7/3/2016 2	WSS 06-30-16 7/5/2016 4	WSS 06-30-16 7/8/2016 7	WSS 07-15-16 7/17/2016 16	WSS-07-25-16 7/31/2016 30	WSS 08-15-16 8/15/2016 45	WSS 08-29-16 8/30/2016 60	WSS 09-07-16 9/7/2016 69	WSS-09-21-16 9/21/2016 84	Average	St. Dev.	3x St. Dev.	Lower Control Limit (Average Minus 3x St. Dev.)	Upper Control Limit (Average Plus 3x St. Dev.)
LCS2	Ketoprofen		93.7	81.2	79.1	87.6	104.6	97.2	86.6	86.4	90.3	88.4					
LCS1	Ketorolac		98.5	101.4	94.3	112.9	107.7	89.6	107.6	96.0	98.4	107.9	99.7	9.8	29.5	70.2	129.2
LCS2	Ketorolac		93.9	91.5	90.8	93.4	120.0	97.3	89.7	87.1	95.4	119.9					
LCS1	Lidocaine		100.3	101.6	94.9	110.2	101.1	96.8	104.0	100.3	94.0	105.3	108.0	11.8	35.3	72.7	143.3
LCS2	Lidocaine		123.0	115.4	106.3	115.1	125.0	102.5	119.6	102.6	101.7	140.3					
LCS1	Lincomycin		99.4	90.1	99.1	108.5	81.6	89.2	86.7	91.1	115.6	108.5	103.8	16.4	49.1	54.8	152.9
LCS2	Lincomycin		106.9	100.6	104.9	106.6	121.2	95.4	96.6	94.0	152.7	127.7					
LCS1	Linuron		104.0	99.3	105.7	104.4	93.4	101.3	89.3	104.4	127.2	96.6	102.9	10.4	31.2	71.7	134.1
LCS2	Linuron		104.7	94.7	101.5	98.3	97.1	100.8	94.6	112.4	131.2	97.3					
LCS1	Lopressor-Metoprolol		112.9	103.7	100.7	104.3	94.6	109.0	97.4	110.8	125.9	125.3	109.9	10.5	31.5	78.3	141.4
LCS2	Lopressor-Metoprolol		116.2	111.5	97.2	109.5	98.5	106.3	104.9	120.9	114.7	132.9					
LCS1	Meclofenamic Acid		98.4	96.2	97.6	107.0	92.4	97.4	100.1	108.3	137.3	105.7	104.1	12.5	37.5	66.6	141.6
LCS2	Meclofenamic Acid		97.2	92.7	97.5	102.4	98.5	100.1	104.2	104.7	139.1	105.5					
LCS1	Meprobamate		102.4	93.4	95.4	114.0	110.9	92.5	104.3	99.4	101.2	111.6	110.0	11.2	33.7	76.3	143.7
LCS2	Meprobamate		121.1	116.9	119.4	126.4	133.5	110.9	123.7	104.7	108.6	110.2					
LCS1	Metazachlor		91.5	100.7	94.8	112.8	98.6	94.4	105.1	92.0	104.7	115.2	103.4	9.2	27.6	75.7	131.0
LCS2	Metazachlor		111.2	106.3	93.9	105.2	114.1	101.0	110.1	87.8	106.1	122.0					
LCS1	Metformin		90.1	87.4	105.4	112.9	120.3	88.1	101.0	106.4	110.4	112.5	100.8	14.2	42.7	58.0	143.5
LCS2	Metformin		110.8	72.4	81.2	116.5	103.6	80.8	122.6	91.2	94.4	107.0					
LCS1	Methylparaben - M-H		96.7	97.1	93.4	105.9	89.1	93.2	92.5	99.9	127.8	91.1	100.0	11.7	35.2	64.8	135.2
LCS2	Methylparaben - M-H		97.0	96.3	85.9	107.6	99.9	90.3	107.3	113.7	126.4	88.9					
LCS1	Metolachlor		105.0	101.0	104.1	108.2	95.3	102.8	102.9	105.7	100.8	96.6	101.5	4.1	12.4	89.1	113.9
LCS2	Metolachlor		107.5	100.8	104.3	105.2	102.9	98.1	100.7	98.4	94.2	95.1					
LCS1	Naproxen		106.8	95.1	98.0	107.5	91.0	89.9	99.8	102.4	123.1	93.0	100.6	8.7	26.1	74.6	126.7
LCS2	Naproxen		99.2	92.2	97.5	103.2	102.2	90.8	96.8	109.8	116.3	98.5					
LCS1	Nifedipine		36.2	80.4	72.9	91.8	52.5	70.1	71.6	86.0	85.2	89.4	64.9	19.0	57.0	7.8	121.9
LCS2	Nifedipine		28.4	53.4	50.3	54.8	42.6	41.7	63.5	85.9	73.5	66.8					
LCS1	Nonyl-phenol		72.9	86.1	101.1	111.9	98.5	69.5	76.9	96.9	107.8	84.4	95.6	15.9	47.6	48.0	143.2
LCS2	Nonyl-phenol		71.5	85.0	113.0	112.7	93.3	97.1	118.9	98.7	122.3	93.3					
LCS1	Norethisterone		95.5	103.4	93.0	106.5	92.3	104.4	96.2	107.9	108.6	97.2	109.1	12.4	37.3	71.8	146.4
LCS2	Norethisterone		106.2	110.1	102.8	117.7	138.7	124.1	124.8	126.7	109.2	116.8					
LCS1	Oxolinic Acid		100.4	101.9	95.5	112.7	100.1	92.2	98.8	90.0	105.4	95.1	108.0	12.3	37.0	71.0	145.0
LCS2	Oxolinic Acid		128.4	116.5	123.7	121.6	120.3	101.2	121.2	95.6	115.9	122.7					
LCS1	Paraxanthine		101.6	93.7	93.2	104.9	101.8	94.7	100.1	103.9	94.1	86.1	94.9	8.2	24.7	70.1	119.6
LCS2	Paraxanthine		84.7	86.6	88.2	86.3	92.7	111.2	108.9	91.0	86.7	86.7					
LCS1	Pentoxifylline		90.6	104.1	97.8	110.4	97.4	94.7	106.8	92.6	107.5	102.4	107.8	12.1	36.3	71.5	144.1
LCS2	Pentoxifylline		122.8	115.9	108.3	122.6	101.6	103.9	132.2	96.5	124.7	123.9					
LCS1	Phenazone		102.6	100.2	95.0	105.6	95.4	93.7	98.1	94.3	94.7	98.7	107.2	13.3	39.9	67.3	147.1
LCS2	Phenazone		135.1	128.2	118.1	120.2	117.8	104.9	123.5	94.0	101.8	122.9					
LCS1	Primidone		99.8	97.9	89.2	122.3	100.0	108.3	124.3	103.2	89.7	111.4	105.1	13.5	40.6	64.5	145.6
LCS2	Primidone		91.3	109.1	86.2	103.8	129.7	96.7	126.0	117.2	86.9	108.2					
LCS1	Progesterone		116.2	91.7	99.3	111.2	107.7	103.6	127.6	109.7	99.2	107.7	107.1	11.9	35.7	71.4	142.9
LCS2	Progesterone		100.4	103.9	101.9	117.6	108.4	85.2	139.7	105.6	106.9	99.3					
LCS1	Propazine		96.4	101.3	102.9	108.0	102.3	94.9	100.6	99.4	102.7	92.2	106.1	10.2	30.7	75.5	136.8
LCS2	Propazine		113.6	115.6	113.8	116.3	131.9	95.1	121.1	97.0	106.0	111.2					
LCS1	Propylparaben		100.0	95.8	97.0	103.5	90.9	99.0	91.2	98.9	126.9	97.7	102.2	11.3	33.9	68.3	136.1
LCS2	Propylparaben		98.2	95.9	86.9	106.4	102.4	95.1	106.1	117.3	131.4	103.6					
LCS1	Quinoline		100.2	100.8	105.7	114.8	103.5	93.5	94.3	103.1	101.1	100.2	100.2	4.9	14.7	85.5	114.9
LCS2	Quinoline		104.7	95.4	102.5	95.9	99.3	98.9	96.5	100.6	95.8	97.0					
LCS1	Simazine		93.4	99.5	99.8	104.8	98.7	99.8	97.7	97.8	101.4	95.9	97.7	3.6	10.9	86.8	108.5
LCS2	Simazine		89.6	100.8	99.1	96.6	93.7	100.7	100.3	95.1	96.3	92.1					

Sample	Working Stock Standard ID Analytical Date Days Since Spike Compound	WSS 06-30-16 7/1/2016 0	WSS 06-30-16 7/3/2016 2	WSS 06-30-16 7/5/2016 4	WSS 06-30-16 7/8/2016 7	WSS 07-15-16 7/17/2016 16	WSS-07-25-16 7/31/2016 30	WSS 08-15-16 8/15/2016 45	WSS 08-29-16 8/30/2016 60	WSS 09-07-16 9/7/2016 69	WSS-09-21-16 9/21/2016 84	Average	St. Dev.	3x St. Dev.	Lower Control Limit (Average Minus 3x St. Dev.)	Upper Control Limit (Average Plus 3x St. Dev.)
LCS1	Sucralose - M-H	95.1	102.3	105.7	103.9	96.4	98.1	97.2	108.1	102.1	104.0	101.8	3.9	11.8	90.1	113.6
LCS2	Sucralose - M-H	102.4	101.0	104.5	100.0	100.9	105.7	107.8	101.7	95.0	105.2					
LCS1	Sulfachloropyridazine	92.1	95.4	95.3	111.3	103.6	92.9	101.3	95.8	103.7	115.2	99.2	11.4	34.1	65.1	133.3
LCS2	Sulfachloropyridazine	90.2	88.6	87.7	98.9	86.5	92.7	100.5	91.7	106.1	134.4					
LCS1	Sulfadiazine	96.7	104.2	105.5	108.8	107.6	105.3	107.4	96.3	111.6	99.8	103.0	6.0	18.0	85.0	121.0
LCS2	Sulfadiazine	92.6	98.0	97.7	98.8	102.5	103.7	115.5	99.9	110.4	97.5					
LCS1	Sulfadimethoxine	100.5	96.0	100.9	105.0	95.8	100.6	92.2	96.5	133.8	92.1	101.0	12.1	36.3	64.8	137.3
LCS2	Sulfadimethoxine	89.3	97.2	92.6	92.9	95.0	103.6	102.2	111.4	131.4	91.4					
LCS1	Sulfamerazine	92.5	92.8	94.8	105.8	93.0	89.3	101.5	90.1	110.3	103.9	102.7	10.7	32.0	70.7	134.7
LCS2	Sulfamerazine	108.0	111.7	102.5	114.4	105.1	86.7	115.9	96.3	113.5	126.2					
LCS1	Sulfamethazine	102.1	95.2	101.7	111.7	88.5	95.2	98.5	109.6	130.3	113.6	104.1	11.0	33.0	71.0	137.1
LCS2	Sulfamethazine	98.1	90.8	95.0	105.2	98.6	94.7	107.9	106.3	126.6	111.6					
LCS1	Sulfamethizole	98.5	92.3	99.5	108.4	82.7	91.6	92.0	94.1	94.2	106.5	95.4	6.4	19.2	76.3	114.6
LCS2	Sulfamethizole	93.4	94.1	98.4	103.7	89.8	88.8	89.3	93.9	94.6	103.0					
LCS1	Sulfamethoxazole	99.7	101.4	101.2	106.4	101.9	99.8	100.1	102.6	101.5	102.2	100.5	2.4	7.3	93.3	107.8
LCS2	Sulfamethoxazole	100.5	98.9	104.1	102.2	98.1	98.0	98.9	96.5	96.6	100.2					
LCS1	Sulfathiazole	95.8	93.9	93.7	101.6	89.5	91.5	99.2	95.1	131.8	100.5	97.2	11.9	35.7	61.6	132.9
LCS2	Sulfathiazole	85.7	82.1	80.4	100.8	102.3	84.6	94.8	114.3	111.3	95.8					
LCS1	Sulfometuron methyl	103.1	96.6	95.4	108.3	95.9	92.2	103.1	84.7	104.8	98.0	93.3	9.5	28.5	64.7	121.8
LCS2	Sulfometuron methyl	93.7	87.5	94.8	83.0	85.7	105.8	92.2	69.5	84.9	85.9					
LCS1	TCEP	111.9	102.5	99.9	107.3	92.9	96.5	108.7	97.4	101.4	98.6	97.9	8.8	26.5	71.4	124.4
LCS2	TCEP	103.7	95.8	89.6	107.7	75.0	100.7	94.0	88.2	101.4	85.2					
LCS1	TCPP	108.8	99.3	103.7	117.0	124.0	117.0	119.3	84.6	165.3	82.2	110.4	30.9	92.7	17.7	203.1
LCS2	TCPP	119.8	98.0	84.2	111.3	77.2	120.0	117.3	85.7	203.8	69.8					
LCS1	TDCPP - PRM	124.3	99.8	101.7	111.7	113.6	101.5	137.6	101.1	138.4	80.5	98.4	24.2	72.6	25.8	171.1
LCS2	TDCPP - PRM	101.2	77.2	74.3	78.4	131.3	81.6	76.8	110.3	83.1	44.3					
LCS1	Testosterone	101.1	106.3	104.5	118.1	94.8	99.0	98.2	101.4	92.2	82.7	98.9	9.3	28.0	70.9	126.9
LCS2	Testosterone	100.4	103.6	110.8	112.8	82.4	96.9	95.4	93.4	98.7	85.5					
LCS1	Theobromine	66.2	102.6	106.5	111.4	114.8	82.8	101.3	99.1	101.0	111.2	97.3	14.0	42.0	55.3	139.3
LCS2	Theobromine	67.1	92.7	108.1	107.3	98.9	113.1	81.8	93.0	96.6	90.8					
LCS1	Theophyline	77.7	91.3	101.8	106.1	114.3	105.6	83.2	99.0	94.4	110.2	94.1	12.6	37.8	56.3	131.9
LCS2	Theophyline	70.1	96.2	90.0	88.1	108.3	92.5	67.7	93.7	90.3	100.7					
LCS1	Thiabendazole	100.7	97.5	96.3	108.5	90.0	95.4	100.0	89.5	97.5	104.3	100.4	6.3	19.0	81.3	119.4
LCS2	Thiabendazole	105.7	102.2	105.0	112.3	109.8	98.4	96.5	95.3	95.4	107.0					
LCS1	Triclocarban	128.5	97.0	101.8	105.6	74.9	99.8	103.2	89.2	129.2	98.4	104.5	14.6	43.9	60.6	148.4
LCS2	Triclocarban	125.2	102.1	101.2	112.2	92.8	95.4	121.7	99.4	123.3	88.9					
LCS1	Triclosan	73.4	77.1	82.8	91.6	80.4	83.3	73.2	85.0	124.5	91.6	81.6	16.3	49.0	32.5	130.6
LCS2	Triclosan	60.8	60.7	60.3	79.0	76.3	62.4	75.8	96.8	110.8	85.6					
LCS1	Trimethoprim	96.4	87.5	95.8	108.8	105.2	101.9	104.1	100.7	103.6	96.2	98.6	5.7	17.0	81.6	115.5
LCS2	Trimethoprim	103.5	91.1	94.8	90.0	102.3	103.6	100.4	94.4	94.7	96.2					
LCS1	Warfarin	89.8	93.1	92.4	99.9	67.2	84.8	92.1	96.3	115.5	90.4	89.0	12.9	38.8	50.2	127.8
LCS2	Warfarin	80.9	80.1	77.7	92.2	61.4	73.2	99.0	105.3	99.4	89.9					

Table 3. Raw Laboratory Results

	Working Stock Standard ID	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
	Analytical Date	7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
	Days Since Spike	0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
17 alpha ethynylestradiol - M-H	LCS1	105.9	103.1	98.3	108.8	96.2	103.4	96.3	102.5	127.1	86.5
	HDR-1	92.9	82.7	95.1	90.9	84.8	74.4	105.2	109.2	148.4	125.3
	HDR-2	90.6	88.6	87.2	85.9	75.9	75.7	101.2	114.5	93.8	106.1
	HDR-3	81.4	88.1	84.7	87.1	80.7	77.4	91.6	106.2	117.2	82.3
	HDR-4	85.9	91.0	86.1	86.3	67.3	73.7	87.5	97.2	103.6	85.9
	HDR-5	80.9	97.2	84.7	97.2	80.5	79.4	96.0	123.8	121.4	79.7
	HDR-6	87.9	87.6	86.7	84.0	96.8	75.1	101.0	121.1	141.2	95.2
	HDR-7	86.5	89.9	89.2	83.7	85.9	74.2	88.4	114.1	129.5	91.7
	HDR-8	115.4	90.2	105.5	83.1	78.7	72.8	95.9	104.8	124.1	103.5
	HDR-9	86.9	84.1	97.0	103.8	84.2	82.7	100.5	109.7	142.3	89.3
	HDR-10	86.2	78.5	82.6	86.7	88.6	79.4	112.0	117.7	132.2	106.0
	HDR-11	86.8	93.6	83.1	84.8	82.3	84.8	112.4	99.5	149.2	81.3
	LCS2	96.2	98.7	96.7	101.8	108.0	118.0	109.6	126.0	124.4	99.4
17B-Estradiol - M-H	LCS1	109.1	101.2	101.8	105.3	92.6	100.5	103.3	105.1	121.3	92.0
	HDR-1	100.9	99.4	93.8	104.5	98.1	84.3	120.1	105.5	115.1	113.7
	HDR-2	97.6	101.3	96.5	97.1	75.4	76.8	106.2	107.0	84.0	103.6
	HDR-3	93.7	96.7	98.5	99.4	83.9	79.3	99.4	105.2	121.9	86.4
	HDR-4	94.4	96.5	98.1	98.5	77.8	74.0	104.0	95.1	100.9	95.3
	HDR-5	101.2	96.2	98.6	89.3	70.0	82.6	105.1	112.9	118.1	96.8
	HDR-6	99.4	91.4	92.6	97.3	89.6	77.1	105.6	101.2	132.9	101.9
	HDR-7	89.9	98.4	94.7	102.8	84.4	79.8	110.8	114.4	118.5	91.9
	HDR-8	105.8	99.8	94.8	94.5	76.3	74.3	96.7	108.3	128.8	97.8
	HDR-9	92.7	100.9	97.7	96.7	82.5	75.1	109.1	111.9	122.7	92.2
	HDR-10	101.3	98.3	94.3	90.5	74.8	79.1	94.6	98.1	131.6	89.1
	HDR-11	99.5	100.7	93.5	65.7	84.2	84.2	104.6	115.4	132.0	93.7
	LCS2	102.2	100.3	92.8	111.0	105.0	99.5	111.4	126.1	136.3	97.3
2,4-D	LCS1	102.7	66.8	98.9	103.5	96.5	94.5	98.4	98.2	128.8	90.6
	HDR-1	111.0	96.6	122.4	137.2	129.0	96.4	104.6	101.2	160.0	175.0
	HDR-2	127.0	100.0	132.7	125.2	95.9	89.4	113.0	104.8	110.7	157.8
	HDR-3	108.5	104.8	131.5	133.3	120.8	85.9	129.8	117.8	149.5	160.8
	HDR-4	126.2	77.0	121.8	135.8	124.8	83.5	96.3	107.0	112.5	132.0
	HDR-5	121.5	83.6	119.6	110.1	106.7	92.8	121.6	126.3	146.6	156.7
	HDR-6	134.1	76.7	108.8	129.6	108.9	86.2	102.0	111.5	157.3	138.3
	HDR-7	113.5	98.5	119.5	125.0	94.3	87.3	106.9	100.9	128.6	158.0
	HDR-8	149.1	90.6	113.4	127.0	113.3	77.5	101.4	111.4	155.9	112.3
	HDR-9	128.1	88.4	132.7	120.1	119.9	78.3	104.7	110.3	152.8	130.0
	HDR-10	106.6	87.2	139.3	113.5	114.2	79.5	104.5	109.5	151.2	137.5
	HDR-11	150.0	75.9	108.5	104.2	101.5	80.1	99.3	121.0	154.8	123.4
	LCS2	97.3	62.8	90.3	98.8	96.9	98.4	101.1	104.3	121.7	91.7
	LCS1	84.9	86.8	79.9	112.2	87.7	88.2	82.5	100.6	109.2	90.4
4-tert-OctylphenoL	HDR-1	80.8	118.9	119.6	143.8	-0.3	87.4	145.3	106.4	105.3	116.4
	HDR-2	96.1	144.6	126.0	142.8	77.1	87.1	156.0	106.5	110.9	109.2
	HDR-3	82.4	131.6	105.2	144.0	74.0	81.0	126.8	101.3	100.3	91.8
	HDR-4	79.5	112.3	113.5	134.9	65.2	71.7	121.4	108.1	81.0	76.4
	HDR-5	90.5	128.2	121.3	106.7	69.8	84.8	117.8	146.2	96.3	99.1
	HDR-6	86.1	108.7	125.1	132.8	64.5	79.0	122.9	104.4	112.3	97.3

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-7	79.4	118.2	126.5	146.6	64.0	81.9	120.8	107.1	107.6	90.5
	HDR-8	78.1	121.2	119.3	134.3	64.4	78.8	111.5	106.6	97.7	97.6
	HDR-9	86.1	114.9	129.3	123.3	78.5	84.7	119.3	101.5	99.5	89.7
	HDR-10	76.2	116.7	138.2	110.2	73.2	79.7	124.4	129.1	129.1	105.7
	HDR-11	93.6	114.1	123.5	106.9	68.4	78.9	136.7	88.1	108.8	99.5
	LCS2	68.8	89.5	82.9	101.2	90.3	78.5	87.5	98.3	95.7	88.9
Acesulfame	LCS1	98.2	100.5	99.9	109.7	104.3	100.2	99.1	103.0	99.2	102.6
	HDR-1	103.5	103.0	103.0	96.1	96.8	92.5	112.1	97.9	117.2	114.3
	HDR-2	97.5	101.9	103.1	87.9	101.3	86.5	91.1	97.2	115.6	137.4
	HDR-3	88.5	99.2	97.4	105.4	97.7	87.4	96.5	99.1	119.5	132.3
	HDR-4	102.9	90.0	81.4	93.9	95.8	90.6	104.0	91.9	116.1	122.5
	HDR-5	101.1	101.2	86.7	94.6	96.6	96.4	103.1	102.8	125.0	128.6
	HDR-6	86.7	99.5	105.4	105.8	99.6	85.3	110.3	94.9	120.9	126.6
	HDR-7	92.7	89.2	99.3	106.7	92.6	87.7	114.7	98.9	115.6	129.6
	HDR-8	93.5	96.5	88.0	96.3	90.0	87.9	103.8	98.2	116.1	130.5
	HDR-9	95.4	83.7	97.3	86.9	97.3	94.9	109.9	110.1	119.7	112.2
	HDR-10	87.9	101.3	86.3	94.7	97.8	82.5	102.3	108.2	121.0	119.8
	HDR-11	102.1	101.0	100.0	74.9	97.5	78.2	104.8	95.7	122.4	126.9
	LCS2	100.2	99.7	102.6	106.3	99.9	101.7	103.4	98.6	97.3	102.6
Acetaminophen	LCS1	93.4	101.7	101.8	104.2	96.5	96.9	95.7	100.7	101.4	89.1
	HDR-1	92.9	101.1	103.8	99.4	82.4	85.2	109.2	85.2	83.3	83.2
	HDR-2	91.1	101.3	97.8	121.0	67.6	81.0	108.6	83.7	76.5	81.1
	HDR-3	84.0	128.2	111.3	105.8	77.4	69.1	109.8	82.4	72.2	73.3
	HDR-4	73.8	90.4	109.7	101.1	75.4	60.7	108.8	84.6	60.8	80.0
	HDR-5	88.8	96.0	123.9	109.3	94.4	81.4	111.9	111.7	88.2	69.5
	HDR-6	94.1	96.9	115.4	124.1	88.3	74.4	106.9	83.8	75.3	78.8
	HDR-7	96.8	84.7	119.5	101.5	117.8	92.5	111.4	79.4	65.2	83.7
	HDR-8	75.0	105.9	107.9	116.6	79.8	71.9	89.9	80.4	61.7	80.1
	HDR-9	87.4	89.1	112.1	116.2	91.0	74.9	106.5	82.3	74.9	88.9
	HDR-10	89.3	122.1	107.2	98.1	84.2	71.4	90.5	88.6	77.0	87.4
	HDR-11	113.0	127.4	111.0	69.7	89.7	73.0	101.4	83.1	69.0	83.7
	LCS2	90.4	99.9	97.8	101.3	106.5	96.7	96.7	102.9	101.4	89.6
Albuterol	LCS1	79.2	117.8	85.9	99.3	122.7	91.9	96.8	248.8	61.2	63.0
	HDR-1	101.7	109.4	88.2	122.0	125.8	83.6	178.8	731.0	89.7	127.6
	HDR-2	109.3	111.0	128.1	141.8	152.6	110.4	152.2	391.6	126.0	132.1
	HDR-3	94.4	98.0	96.4	137.7	156.8	84.0	175.7	619.1	103.2	149.6
	HDR-4	102.6	106.3	84.7	136.8	108.9	56.8	115.6	561.6	92.0	119.5
	HDR-5	119.3	103.4	99.6	140.7	113.6	93.3	175.1	478.2	101.8	121.2
	HDR-6	95.6	105.5	122.0	112.4	120.0	86.2	146.6	479.5	108.6	130.7
	HDR-7	93.9	101.4	75.1	109.7	104.2	73.7	133.1	589.4	96.0	117.5
	HDR-8	112.3	117.6	132.0	109.8	127.1	93.5	136.7	576.6	90.0	102.3
	HDR-9	115.8	114.9	122.6	80.9	132.6	43.4	147.9	575.2	78.8	133.6
	HDR-10	121.4	112.4	99.2	123.0	129.6	48.2	133.1	1136.2	128.1	108.0
	HDR-11	98.5	99.2	113.4	103.5	133.2	45.9	181.4	380.5	117.0	105.0
	LCS2	88.4	101.9	73.1	105.0	98.6	64.0	134.3	56.7	70.0	62.9

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
Amoxicilin	LCS1	95.6	102.6	98.0	100.5	75.2	104.5	98.9	98.2	122.9	88.6
	HDR-1	39.1	33.5	54.5	42.1	304.8	123.0	474.9	750.1	728.1	577.0
	HDR-2	31.8	38.8	18.3	48.7	333.8	113.9	445.2	727.5	578.9	650.1
	HDR-3	13.1	19.9	59.8	40.4	264.6	105.1	443.8	625.1	717.3	580.4
	HDR-4	45.5	31.9	18.0	47.1	338.5	75.1	419.8	657.9	701.4	583.7
	HDR-5	28.3	21.4	42.2	33.9	279.6	87.0	393.6	600.5	655.3	690.4
	HDR-6	39.5	25.2	29.2	46.5	226.8	106.5	368.8	735.5	668.8	588.5
	HDR-7	10.4	36.6	36.5	28.9	311.9	92.5	427.6	646.5	771.7	611.4
	HDR-8	23.2	31.5	57.7	37.8	362.4	119.2	339.2	609.5	609.5	636.5
	HDR-9	26.5	23.7	30.6	26.7	267.5	112.5	436.6	638.6	755.0	685.6
	HDR-10	51.6	25.4	44.8	18.4	350.1	72.5	289.8	786.0	606.3	471.4
	HDR-11	48.9	29.4	29.9	20.4	371.8	106.0	456.4	684.6	717.4	574.3
	LCS2	97.5	106.2	100.1	110.2	128.8	92.6	113.4	99.6	139.8	105.7
Andorostenedione	LCS1	126.5	88.7	99.5	114.6	92.0	96.9	128.1	97.8	95.2	109.6
	HDR-1	63.4	68.9	67.7	81.1	67.3	61.4	71.4	91.7	77.0	98.1
	HDR-2	63.8	78.6	74.2	77.8	69.8	46.8	88.2	83.4	94.0	92.9
	HDR-3	59.5	58.0	60.8	83.4	101.7	54.8	70.9	79.7	74.9	94.0
	HDR-4	64.0	48.4	55.4	78.5	82.2	39.9	82.2	75.3	93.3	84.7
	HDR-5	55.9	64.6	65.3	69.6	92.0	54.3	72.9	125.0	91.1	89.3
	HDR-6	77.0	57.8	62.0	66.5	87.2	50.7	79.1	81.3	95.8	102.6
	HDR-7	74.3	63.4	60.8	76.6	94.6	44.5	92.1	97.3	86.4	108.3
	HDR-8	74.3	60.2	60.1	76.9	81.5	49.2	60.1	96.0	78.8	101.7
	HDR-9	73.0	68.4	70.4	68.1	92.7	49.2	88.0	78.7	97.1	109.0
	HDR-10	73.6	50.1	64.4	74.1	82.5	50.3	68.9	126.1	98.3	101.5
	HDR-11	79.1	56.8	74.3	47.1	87.5	46.7	92.4	67.6	78.4	129.6
	LCS2	100.0	86.9	87.2	100.5	123.8	93.4	98.3	95.5	91.8	93.4
Atenolol	LCS1	123.8	94.4	107.2	118.1	89.6	76.6	100.6	107.6	100.6	107.8
	HDR-1	49.8	38.6	35.6	53.5	41.3	37.3	52.2	57.5	57.9	56.0
	HDR-2	45.8	43.1	40.6	49.1	41.2	33.6	42.0	59.2	56.5	53.3
	HDR-3	51.9	36.0	37.6	51.8	37.8	31.7	41.3	68.2	55.0	51.0
	HDR-4	42.6	36.8	40.3	47.3	43.0	31.5	48.7	64.4	54.0	51.6
	HDR-5	54.6	40.0	42.0	50.1	42.9	34.8	45.6	73.7	60.6	51.6
	HDR-6	48.5	33.7	39.2	45.2	38.2	30.9	46.8	66.8	53.8	49.8
	HDR-7	47.6	38.1	44.7	48.6	39.6	31.7	42.4	69.3	60.4	49.2
	HDR-8	40.0	36.0	36.2	46.1	39.5	35.9	48.0	70.3	53.3	53.0
	HDR-9	47.0	42.0	39.4	43.4	43.0	34.3	44.5	71.3	57.7	47.8
	HDR-10	40.8	36.3	40.8	48.6	41.2	36.1	52.3	93.5	61.1	51.1
	HDR-11	51.9	37.2	37.5	37.8	42.1	33.4	50.0	67.4	55.1	53.9
	LCS2	118.5	98.3	107.0	113.8	98.0	98.7	87.1	101.5	88.2	110.6
Atrazine	LCS1	97.3	112.2	99.6	109.5	97.8	98.0	95.2	92.4	100.1	102.2
	HDR-1	70.1	68.3	66.4	75.0	82.0	68.3	71.3	67.0	85.5	66.3
	HDR-2	71.4	67.4	78.5	71.7	82.7	67.0	71.2	64.5	84.9	77.3
	HDR-3	74.6	73.6	72.2	69.5	87.2	65.5	72.6	62.9	91.6	82.8
	HDR-4	78.3	73.0	71.8	69.7	82.6	69.0	78.2	66.7	88.4	74.1
	HDR-5	69.4	82.9	68.7	71.6	86.4	68.5	72.6	64.5	85.0	81.7
	HDR-6	76.2	72.2	76.4	65.3	83.0	65.8	77.7	70.9	81.3	81.8
	HDR-7	67.9	74.5	77.5	65.6	87.5	66.0	75.5	61.8	84.5	74.5
	HDR-8	74.4	64.0	70.2	71.0	84.1	64.1	71.0	63.9	84.7	83.8

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-9	76.3	79.2	69.1	62.4	86.0	64.1	77.3	64.7	79.7	76.2
	HDR-10	68.3	71.8	71.7	70.6	88.3	57.8	76.3	50.0	86.6	67.3
	HDR-11	73.0	66.0	68.4	41.2	86.1	61.8	65.1	60.9	87.4	77.2
	LCS2	105.9	101.3	100.9	102.2	113.7	97.1	105.9	86.8	106.1	107.1
Bendroflumethiazide - M-H	LCS1	103.7	97.3	97.7	107.3	83.7	94.2	90.2	99.3	85.0	103.9
	HDR-1	181.1	183.9	182.5	183.9	103.9	264.2	141.6	118.5	142.7	130.1
	HDR-2	182.3	186.6	189.6	173.9	101.7	281.8	130.8	112.2	142.9	115.3
	HDR-3	175.2	194.9	175.6	179.4	107.4	276.1	125.7	116.0	128.2	117.1
	HDR-4	169.4	172.0	164.1	166.3	97.3	255.3	130.7	136.1	125.4	104.0
	HDR-5	182.7	162.4	199.6	160.3	99.4	268.9	120.1	144.8	150.4	101.5
	HDR-6	164.2	169.1	173.8	170.4	108.2	256.5	129.9	114.3	135.5	115.4
	HDR-7	163.5	176.7	176.8	152.9	101.6	246.7	121.7	110.0	131.1	117.0
	HDR-8	158.7	154.5	163.1	163.0	98.2	271.6	115.1	116.6	130.3	109.9
	HDR-9	162.7	157.5	158.5	143.3	110.9	250.8	115.1	112.2	139.6	101.0
	HDR-10	148.9	159.9	177.8	163.1	97.9	254.3	126.4	77.5	143.5	109.1
	HDR-11	192.2	156.9	161.1	170.0	101.5	253.3	121.3	105.1	140.9	113.6
	LCS2	94.4	91.2	95.4	106.2	89.7	90.1	93.8	93.9	83.0	92.6
Bezafibrate	LCS1	96.4	92.9	98.8	106.8	87.9	92.4	85.6	98.3	106.7	112.3
	HDR-1	170.9	174.7	169.0	190.6	151.1	146.8	240.4	186.0	189.5	207.9
	HDR-2	177.7	177.2	165.9	186.1	140.2	153.6	202.2	171.3	178.4	188.5
	HDR-3	162.8	174.6	168.4	182.8	135.8	145.8	222.0	168.0	175.9	165.9
	HDR-4	162.3	161.9	150.2	188.3	122.2	133.2	200.9	189.7	169.3	174.6
	HDR-5	182.3	167.7	179.8	170.2	133.8	150.0	197.5	215.2	191.0	186.4
	HDR-6	160.4	165.1	166.8	182.1	137.9	148.1	215.8	184.5	188.4	193.3
	HDR-7	165.4	165.6	164.6	181.7	127.3	138.3	199.8	169.7	191.5	202.6
	HDR-8	161.1	170.0	150.7	178.2	132.0	141.4	183.7	170.5	186.7	174.5
	HDR-9	159.3	156.5	162.0	174.6	153.3	149.4	200.9	185.3	219.8	169.7
	HDR-10	149.0	160.0	170.5	178.7	135.1	151.3	210.2	145.8	203.7	193.8
	HDR-11	184.8	157.8	147.5	159.8	145.7	141.7	197.3	160.7	183.4	182.0
	LCS2	96.0	102.6	103.5	118.7	98.0	92.1	107.1	96.6	113.7	93.0
Bisphenol A	LCS1	101.7	100.4	98.1	109.4	99.9	98.5	100.1	100.1	97.6	95.6
	HDR-1	94.7	94.9	92.2	102.7	90.8	75.0	97.6	98.1	101.5	96.0
	HDR-2	95.8	94.4	95.0	100.7	88.7	72.0	96.9	101.9	99.0	94.2
	HDR-3	96.8	97.6	96.9	101.5	94.7	71.1	97.6	98.8	96.3	91.0
	HDR-4	101.0	94.1	92.2	97.4	86.0	70.4	92.3	95.5	91.7	85.5
	HDR-5	95.1	92.5	96.8	100.8	90.1	77.8	98.1	106.5	99.4	92.9
	HDR-6	99.9	96.5	91.8	95.5	87.4	74.4	103.4	98.9	101.0	97.2
	HDR-7	132.9	94.6	100.0	100.1	89.2	70.1	97.9	94.4	103.4	94.9
	HDR-8	99.6	95.5	98.6	97.8	80.6	65.5	91.3	93.8	92.9	95.9
	HDR-9	99.0	93.1	93.7	93.0	97.1	75.2	95.0	98.7	100.1	90.6
	HDR-10	101.6	89.6	98.6	99.4	90.4	75.4	100.6	168.2	96.6	92.3
	HDR-11	102.8	97.7	91.2	78.5	92.8	73.7	97.9	93.1	98.2	96.5
	LCS2	101.0	102.2	103.3	106.1	101.4	98.2	101.0	99.9	95.9	96.0
Bromacil	LCS1	99.4	92.0	94.8	101.9	88.7	92.7	101.0	83.9	91.7	98.1
	HDR-1	132.7	140.0	137.0	151.8	124.0	143.8	178.7	119.8	143.2	157.1
	HDR-2	138.5	136.6	149.0	143.7	102.1	135.4	176.3	118.9	131.2	133.6
	HDR-3	138.4	124.5	133.8	131.6	105.1	122.5	162.5	106.8	131.6	173.9
	HDR-4	130.1	111.5	127.6	156.2	104.4	130.8	159.4	114.8	130.8	134.3

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-5	135.0	129.7	146.3	145.5	109.1	138.2	162.5	140.2	147.3	132.4
	HDR-6	132.8	123.4	134.4	149.6	120.1	127.2	160.8	105.3	117.3	137.8
	HDR-7	128.7	140.4	130.5	156.7	99.1	122.7	164.9	101.2	126.7	129.5
	HDR-8	127.4	144.0	145.1	148.7	108.0	131.2	146.8	103.2	150.4	139.9
	HDR-9	136.6	133.8	132.0	140.4	121.4	130.5	161.4	117.5	136.9	133.9
	HDR-10	110.9	123.4	135.0	157.6	122.6	128.1	171.8	172.1	120.3	139.8
	HDR-11	149.8	120.3	115.4	113.2	108.6	130.1	154.5	103.0	131.9	153.1
	LCS2	97.2	97.1	98.2	98.7	85.5	92.3	104.2	92.7	93.5	101.0
Clofibric acid	LCS1	105.0	101.1	98.2	99.7	97.7	99.7	94.9	95.7	132.8	92.8
	HDR-1	132.1	133.6	126.7	141.3	127.6	108.2	137.0	111.6	131.9	134.4
	HDR-2	126.0	140.2	122.9	129.0	114.3	100.6	129.2	103.0	81.3	131.9
	HDR-3	140.9	138.6	123.5	130.5	110.9	95.7	120.3	106.2	114.1	122.1
	HDR-4	122.1	132.3	126.8	135.1	121.2	100.8	120.8	96.6	91.8	122.4
	HDR-5	132.1	140.4	129.7	131.0	115.4	108.3	127.7	114.1	114.7	132.8
	HDR-6	130.8	135.5	129.7	132.8	123.3	105.9	128.5	102.0	130.3	126.3
	HDR-7	131.3	125.1	125.1	135.9	137.9	97.6	131.7	106.9	104.7	114.7
	HDR-8	132.0	126.8	125.1	128.9	130.5	94.2	123.1	94.3	145.2	116.1
	HDR-9	133.2	139.9	124.9	130.1	135.7	105.1	123.0	99.0	135.5	115.8
	HDR-10	137.3	138.2	118.2	127.9	128.5	101.1	123.1	100.8	125.4	133.5
	HDR-11	131.1	129.6	119.0	123.5	121.8	102.0	129.4	100.1	133.4	124.1
	LCS2	102.2	100.0	94.6	93.8	99.4	98.7	103.6	107.8	115.1	107.7
Butalbital	LCS1	100.4	99.2	103.3	111.9	85.6	93.0	91.5	90.6	94.9	88.7
	HDR-1	118.7	121.3	114.3	149.6	135.4	120.6	139.1	117.6	154.4	154.8
	HDR-2	99.9	123.3	120.1	126.3	118.5	111.1	138.7	117.3	160.2	134.9
	HDR-3	108.2	107.0	107.0	136.8	117.7	107.4	126.6	124.9	132.8	132.8
	HDR-4	101.3	96.5	105.4	133.8	124.3	113.1	118.8	130.5	145.0	131.2
	HDR-5	101.7	118.7	121.3	125.9	123.9	108.3	114.4	160.6	129.6	146.9
	HDR-6	94.6	116.0	117.5	132.5	125.8	111.3	113.1	122.8	124.3	151.7
	HDR-7	115.8	119.1	111.7	126.5	117.0	110.9	124.7	109.2	143.6	132.8
	HDR-8	107.6	111.3	115.3	143.7	110.3	107.8	107.2	115.3	126.6	137.1
	HDR-9	108.4	125.9	106.8	127.7	112.6	117.0	115.0	109.8	151.1	128.1
	HDR-10	94.5	100.9	129.2	124.4	121.0	119.8	129.1	246.4	145.1	132.6
	HDR-11	115.5	110.5	109.6	156.1	120.0	113.0	119.4	113.2	141.0	126.1
	LCS2	92.9	103.2	98.6	105.3	96.2	90.6	88.9	94.7	90.2	90.3
Butylparaben-NEG	LCS1	98.2	94.8	101.5	96.5	88.9	96.0	93.8	99.6	124.3	96.4
	HDR-1	100.0	101.5	100.2	104.9	92.6	105.3	129.3	107.7	151.3	119.1
	HDR-2	90.9	96.4	95.6	102.1	89.2	96.0	126.1	107.0	110.2	118.3
	HDR-3	97.9	96.3	92.2	100.1	89.1	97.9	122.7	108.2	140.0	118.8
	HDR-4	97.4	100.4	96.8	100.5	87.1	95.0	120.2	100.6	127.7	105.3
	HDR-5	94.7	100.3	100.8	99.8	88.9	102.1	115.7	110.8	141.2	113.2
	HDR-6	99.2	98.5	98.8	97.2	94.1	98.9	125.0	108.6	163.0	118.5
	HDR-7	94.7	103.2	98.5	98.3	95.3	97.6	118.3	108.5	143.4	116.9
	HDR-8	102.3	92.6	96.4	100.7	94.3	91.7	118.2	107.8	143.9	113.5
	HDR-9	96.6	96.6	95.7	101.7	95.7	104.5	121.4	110.3	165.8	115.4
	HDR-10	92.8	92.4	98.7	96.3	95.5	96.1	115.5	99.0	165.9	119.9
	HDR-11	95.5	100.0	92.6	77.0	91.8	94.6	118.1	104.5	153.8	112.8
	LCS2	95.8	91.6	87.1	97.6	95.1	84.7	103.1	113.9	120.3	94.6
Caffeine	LCS1	99.6	98.1	99.3	114.8	104.3	99.9	103.2	92.4	102.3	101.6

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-1	81.3	111.6	107.4	92.5	69.6	93.0	187.8	117.1	108.4	86.8
	HDR-2	80.7	105.6	99.9	102.4	120.4	68.4	117.1	84.8	102.1	137.4
	HDR-3	77.0	95.5	112.1	40.4	164.3	92.7	122.1	107.0	137.2	198.3
	HDR-4	92.4	114.5	80.5	102.6	97.0	72.2	115.3	103.5	127.8	101.3
	HDR-5	112.7	132.8	158.9	116.4	83.2	114.7	49.9	122.1	134.2	69.3
	HDR-6	143.8	111.3	107.1	115.6	135.2	90.1	105.8	107.5	74.9	109.5
	HDR-7	66.0	111.1	91.6	98.8	76.5	63.8	59.0	107.1	98.3	103.3
	HDR-8	130.6	183.9	108.5	136.5	42.3	71.8	102.5	129.2	133.7	89.4
	HDR-9	102.0	99.8	107.9	95.1	81.3	155.5	72.7	89.7	99.4	69.7
	HDR-10	97.1	72.9	123.1	126.0	98.6	81.2	123.5	274.4	115.5	148.4
	HDR-11	107.6	73.0	115.7	67.4	110.6	133.1	103.8	86.1	102.5	108.9
	LCS2	106.5	100.8	104.7	115.6	112.1	101.3	104.8	96.4	105.6	108.1
Carbadox	LCS1	109.5	91.6	100.0	107.6	87.8	73.5	101.0	99.3	141.8	95.2
	HDR-1	93.0	117.6	90.7	114.3	102.1	98.9	105.9	115.8	131.2	117.6
	HDR-2	92.8	88.3	114.0	114.2	115.5	66.5	121.4	108.4	85.6	160.7
	HDR-3	102.9	97.8	112.1	118.8	101.0	88.8	102.6	101.8	111.0	121.2
	HDR-4	110.2	99.3	114.1	88.8	99.6	100.7	109.9	124.7	115.1	163.2
	HDR-5	116.5	98.8	113.0	105.7	105.5	101.4	104.1	149.7	127.4	114.2
	HDR-6	114.2	92.4	83.9	86.1	117.3	66.8	119.3	130.7	120.8	156.5
	HDR-7	100.5	103.8	100.6	104.3	101.2	77.1	117.9	138.6	105.8	136.8
	HDR-8	112.2	110.0	86.7	100.0	95.3	85.0	126.0	111.4	101.2	114.2
	HDR-9	110.5	104.9	112.3	89.0	115.8	97.6	124.3	133.1	147.3	117.6
	HDR-10	105.5	116.8	104.6	103.5	111.9	76.0	97.1	112.6	166.3	112.4
	HDR-11	128.1	116.5	109.1	66.0	109.2	68.5	88.6	112.7	115.8	117.2
	LCS2	101.0	93.7	99.5	102.8	96.2	94.3	95.0	109.9	112.9	96.1
Carbamazepine	LCS1	96.5	95.1	105.9	112.5	103.4	93.9	100.4	96.6	105.8	90.1
	HDR-1	124.2	132.1	118.9	133.8	114.2	96.4	119.3	116.9	133.2	137.5
	HDR-2	124.0	134.5	128.9	134.5	118.1	96.0	124.5	120.5	138.6	134.4
	HDR-3	135.4	125.1	125.1	134.8	119.2	91.1	116.8	131.7	128.7	135.8
	HDR-4	129.6	127.4	125.2	125.7	113.8	92.9	123.2	128.2	132.9	133.1
	HDR-5	124.2	125.4	123.0	137.9	113.8	101.0	119.3	130.1	140.4	124.1
	HDR-6	129.4	124.6	132.1	131.6	123.2	99.0	129.7	126.5	136.5	131.2
	HDR-7	134.3	126.6	135.4	134.6	122.2	97.5	113.7	121.7	124.5	125.4
	HDR-8	125.5	124.5	131.5	130.8	114.6	89.4	114.9	117.2	128.7	119.2
	HDR-9	133.2	127.8	124.8	129.1	129.6	101.9	118.1	122.6	141.6	122.3
	HDR-10	128.9	122.0	127.8	141.5	131.3	91.4	120.5	135.4	132.0	128.7
	HDR-11	135.2	123.8	137.2	102.9	132.3	99.3	126.4	117.2	125.4	122.8
	LCS2	103.8	98.1	99.8	102.6	105.8	98.8	97.9	85.1	99.2	94.5
Carisoprodol	LCS1	98.6	101.6	107.3	117.7	103.0	106.5	81.2	100.3	98.6	127.6
	HDR-1	108.5	117.9	147.8	141.5	117.8	129.4	334.8	107.9	138.6	167.6
	HDR-2	113.8	111.0	168.6	134.9	95.6	144.8	156.6	85.0	123.0	183.1
	HDR-3	102.8	121.0	139.3	134.6	93.0	116.1	268.0	91.1	143.7	200.1
	HDR-4	113.5	116.4	126.7	142.6	115.5	99.9	163.5	81.3	141.4	165.1
	HDR-5	151.3	163.0	200.6	156.5	129.7	602.9	88.0	95.2	164.7	126.1
	HDR-6	137.3	124.0	128.2	114.5	89.4	105.8	209.9	92.9	121.1	146.7
	HDR-7	91.7	128.5	119.1	116.3	92.9	141.4	140.1	99.5	129.6	138.5
	HDR-8	111.8	169.5	107.9	165.8	97.1	95.8	156.7	95.8	143.7	130.5
	HDR-9	127.1	104.4	105.1	105.3	99.1	352.6	138.6	94.7	157.1	124.3

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-10	95.6	123.1	174.6	145.1	78.6	97.3	208.4	190.7	171.0	141.6
	HDR-11	112.2	107.0	128.6	210.1	111.8	144.3	174.6	67.5	148.0	138.5
	LCS2	94.5	79.6	91.1	80.3	110.8	85.9	75.6	97.7	79.8	77.7
Chloramphenicol_M-H	LCS1	99.8	103.5	89.5	108.2	92.2	101.0	103.5	104.7	128.3	103.5
	HDR-1	98.2	116.6	103.1	114.7	125.4	94.6	106.9	74.4	106.7	113.4
	HDR-2	109.1	102.9	89.1	101.5	95.6	89.8	99.8	82.9	74.5	109.1
	HDR-3	105.7	105.6	99.3	104.6	101.3	79.2	103.2	75.8	97.6	107.3
	HDR-4	97.9	97.4	105.3	102.3	108.3	77.9	84.8	75.0	82.2	91.6
	HDR-5	112.2	101.7	107.5	104.8	98.4	95.4	101.3	76.2	96.1	104.0
	HDR-6	106.2	101.4	97.5	96.2	110.1	87.1	109.3	83.3	107.2	90.1
	HDR-7	113.3	103.4	83.1	100.3	105.7	84.0	111.4	82.4	93.4	89.0
	HDR-8	108.0	98.8	98.8	107.6	114.5	78.5	97.8	71.9	102.7	85.9
	HDR-9	98.7	107.0	101.7	99.6	103.7	91.2	102.2	79.2	109.6	102.4
	HDR-10	91.3	98.1	87.5	107.5	113.6	90.7	103.5	76.2	105.0	91.8
	HDR-11	107.3	96.4	101.7	79.1	96.0	77.1	112.3	74.4	106.4	91.8
	LCS2	82.0	91.7	82.6	83.3	100.7	93.8	102.1	110.9	118.3	89.0
Chloridazon	LCS1	101.7	98.9	102.7	106.5	88.7	94.8	94.2	88.4	97.1	108.0
	HDR-1	96.8	87.5	79.4	100.4	95.6	83.3	127.4	81.6	110.5	114.6
	HDR-2	102.8	79.5	90.9	104.9	76.4	101.4	130.3	95.2	131.3	129.2
	HDR-3	82.3	93.3	84.8	83.2	77.5	88.0	122.2	96.0	114.1	106.3
	HDR-4	76.0	70.7	88.7	90.2	69.9	77.8	106.6	104.2	124.7	132.4
	HDR-5	77.9	73.9	88.0	94.8	75.3	77.1	110.1	106.4	110.3	104.6
	HDR-6	74.8	89.3	95.2	90.8	76.4	84.9	109.4	78.3	125.6	129.7
	HDR-7	85.5	76.0	82.4	88.3	3.0	81.9	108.0	91.8	127.8	138.0
	HDR-8	79.4	84.5	101.8	104.0	76.1	85.6	101.6	92.2	104.9	157.6
	HDR-9	75.6	77.7	81.4	81.1	89.5	89.8	91.6	91.5	111.2	139.0
	HDR-10	76.4	70.2	113.2	94.4	81.6	96.4	105.7	77.4	126.2	147.4
	HDR-11	75.7	77.3	100.8	79.7	75.0	85.0	108.5	88.7	116.1	141.2
	LCS2	92.9	99.5	101.0	98.4	85.6	94.4	102.2	89.5	96.7	116.9
Chlorotoluron	LCS1	105.7	97.3	95.2	108.5	84.7	94.4	92.6	99.4	92.3	107.8
	HDR-1	99.9	102.8	105.1	115.7	100.7	110.8	155.8	125.1	155.3	160.9
	HDR-2	104.7	98.5	106.9	112.7	97.3	109.2	144.8	123.5	150.4	149.8
	HDR-3	104.4	101.7	99.1	106.6	96.8	100.5	147.9	116.5	131.9	141.5
	HDR-4	102.1	87.9	96.1	103.2	93.5	97.0	147.6	129.6	131.9	131.7
	HDR-5	96.3	92.1	109.6	106.8	95.1	101.9	134.5	146.8	149.6	128.9
	HDR-6	91.1	93.5	99.9	109.5	94.0	101.0	145.5	120.9	143.5	135.2
	HDR-7	97.9	95.4	100.0	106.5	90.8	95.8	134.2	116.1	133.7	140.7
	HDR-8	91.8	92.0	97.1	106.4	87.7	105.6	127.9	116.3	135.9	136.6
	HDR-9	97.6	94.3	95.6	94.6	103.9	107.5	137.4	121.1	149.3	127.6
	HDR-10	90.9	88.9	104.1	108.8	94.3	96.3	144.6	107.3	157.8	136.1
	HDR-11	110.1	89.8	96.1	79.0	98.9	98.1	143.4	115.0	143.2	140.3
	LCS2	112.0	99.0	103.4	113.5	91.6	91.5	105.8	102.0	88.7	101.3
Cimetidine - PRM	LCS1	119.0	109.2	105.7	99.2	79.3		103.7	103.5	120.3	104.2
	HDR-1	38.1	54.9	38.9	109.5	27.1		12.9		30.9	9.6
	HDR-2	43.1	49.2	34.0	109.6	21.4		13.9		28.3	15.9
	HDR-3	38.1	50.7	37.9	101.7	15.9		12.6		23.8	14.0
	HDR-4	43.1	62.3	35.2	120.6	10.2		18.0		29.8	18.1
	HDR-5	38.8	49.5	34.8	121.1	18.4		19.5		37.9	20.0

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-6	43.9	53.7	34.6	99.9	15.7		16.0		32.1	15.3
	HDR-7	38.2	52.7	34.1	101.4	16.9		20.3		40.7	11.8
	HDR-8	39.4	54.7	25.8	103.7	15.7		17.7		38.4	16.5
	HDR-9	38.6	53.7	27.8	110.5	24.4		19.2		37.6	15.2
	HDR-10	31.8	52.0	33.6	111.1	13.1		27.4		40.1	9.5
	HDR-11	38.0	48.9	32.6	101.4	29.1		11.9		47.7	14.0
	LCS2	96.7	111.8	96.7	68.7	103.9		82.7	104.4	99.8	93.2
Cotinine - PRM	LCS1	94.7	99.2	106.4	115.5	101.7	91.9	100.7	98.6	103.4	89.6
	HDR-1	95.0	115.8	114.7	98.7	110.0	69.2	100.9	113.8	112.5	124.3
	HDR-2	110.6	107.1	118.0	93.0	83.7	70.2	93.9	111.2	112.6	122.8
	HDR-3	113.7	116.9	118.7	99.1	99.2	88.5	100.6	109.1	104.8	108.1
	HDR-4	118.5	116.0	123.2	96.5	99.9	79.8	97.4	91.7	109.1	131.3
	HDR-5	120.2	118.6	138.6	99.2	102.9	76.6	80.5	121.7	115.4	142.9
	HDR-6	113.5	116.3	136.8	99.2	95.9	104.0	103.0	100.5	118.6	96.6
	HDR-7	106.6	108.4	123.4	88.4	107.7	100.3	101.9	106.5	103.4	123.2
	HDR-8	123.5	123.8	151.9	98.3	101.9	74.5	89.1	109.2	108.8	132.6
	HDR-9	116.5	120.1	N/F	111.8	91.4	86.0	108.4	120.8	131.8	116.4
	HDR-10	104.3	103.2	123.9	88.5	114.9	90.9	95.2	182.9	118.8	127.4
	HDR-11	123.5	120.3	127.1	90.1	97.9	92.2	99.6	117.4	131.5	131.0
	LCS2	90.3	98.5	105.9	104.3	96.3	89.6	94.7	93.7	97.0	81.9
Cyanazine	LCS1	99.0	98.7	100.5	109.5	101.4	101.2	96.9	102.6	98.9	97.7
	HDR-1	72.3	77.1	75.2	73.0	70.0	70.0	64.4	-35.1	70.8	70.7
	HDR-2	74.0	73.3	75.2	77.3	79.2	62.8	68.1	54.9	65.5	65.1
	HDR-3	81.4	75.5	76.2	73.0	74.4	59.7	70.2	62.0	66.6	71.8
	HDR-4	70.6	72.4	76.1	70.8	-37.9	60.8	74.3	58.7	64.2	66.9
	HDR-5	74.2	76.4	77.2	78.9	74.8	66.1	69.9	63.3	72.1	71.4
	HDR-6	72.1	78.9	71.8	70.4	73.6	65.1	75.5	55.8	78.3	64.3
	HDR-7	78.7	79.3	71.5	78.8	74.7	69.0	75.3	60.5	66.7	65.2
	HDR-8	74.2	74.1	74.1	74.6	-38.0	63.2	66.6	54.1	74.3	67.8
	HDR-9	74.6	72.2	77.4	68.0	77.8	64.6	69.9	59.3	71.0	69.0
	HDR-10	69.9	75.9	71.8	72.2	74.4	61.5	75.4	61.4	73.9	70.3
	HDR-11	70.8	76.7	69.0	61.6	77.2	61.3	69.0	58.7	74.3	61.7
	LCS2	94.9	99.0	98.7	104.7	99.2	95.2	103.0	92.7	98.4	105.6
DACT	LCS1	104.0	104.4	98.5	110.8	87.8	99.3	107.2	99.1	97.9	115.7
	HDR-1	181.1	199.1	248.2	152.5	186.2	182.9	251.8	224.6	188.9	214.6
	HDR-2	179.2	164.7	227.4	239.2	144.4	187.9	190.1	263.3	153.7	211.9
	HDR-3	133.1	196.9	202.3	186.0	162.0	173.5	234.9	310.3	150.1	229.2
	HDR-4	198.7	120.2	197.1	157.6	156.3	160.8	154.2	330.7	145.4	174.7
	HDR-5	215.1	157.4	224.0	183.4	184.9	212.6	230.1	162.1	125.4	202.3
	HDR-6	153.4	111.0	162.7	158.7	155.5	168.5	205.3	126.6	126.4	164.2
	HDR-7	154.1	123.2	234.6	158.2	136.1	181.1	202.1	170.9	143.2	184.8
	HDR-8	161.8	187.0	241.1	182.1	121.8	183.3	151.9	201.9	139.6	167.9
	HDR-9	213.3	148.2	178.2	184.4	164.9	165.2	161.0	226.7	124.7	202.3
	HDR-10	181.3	125.6	156.7	120.6	150.2	253.2	178.5	173.0	143.1	231.9
	HDR-11	200.0	187.8	216.1	191.2	175.9	167.3	211.8	177.9	131.2	207.1
	LCS2	89.0	83.9	89.3	91.3	96.0	92.7	82.8	97.0	72.9	74.3
DEA	LCS1	100.2	105.9	104.2	107.8	96.5	97.8	96.2	102.0	96.6	109.8
	HDR-1	86.4	93.6	77.3	88.9	72.3	75.6	88.8	49.4	98.0	258.5

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-2	64.7	97.7	91.9	100.3	84.6	72.5	110.1	40.8	103.8	140.9
	HDR-3	94.7	85.7	97.9	106.9	44.9	47.5	81.8	70.8	95.2	134.9
	HDR-4	99.9	99.3	117.0	152.8	64.8	90.0	83.0	50.1	83.9	121.9
	HDR-5	103.2	89.3	88.7	148.6	98.6	61.9	107.6	75.0	84.7	84.8
	HDR-6	73.6	56.6	109.6	82.1	82.5	68.6	121.3	74.2	99.8	118.6
	HDR-7	105.7	84.9	80.3	80.6	79.7	50.1	110.8	100.7	105.6	115.4
	HDR-8	88.6	67.6	99.9	141.6	76.4	57.3	116.6	61.1	86.2	107.4
	HDR-9	118.9	105.6	109.7	94.3	88.3	64.3	93.0	55.5	113.8	122.9
	HDR-10	69.8	85.4	100.7	109.2	55.8	68.5	122.8	84.9	81.9	105.8
	HDR-11	115.2	110.5	94.9	70.9	54.5	56.5	76.8	76.7	106.2	134.9
	LCS2	98.7	106.1	103.1	101.2	95.5	93.2	106.9	95.4	97.1	109.7
DEET	LCS1	104.6	109.6	103.8	110.2	93.8	96.1	93.0	88.0	94.8	100.2
	HDR-1	81.6	80.8	81.2	88.4	91.7	77.6	90.8	84.0	75.6	85.0
	HDR-2	78.9	88.5	88.9	96.7	84.6	84.4	98.6	76.7	84.0	89.9
	HDR-3	80.7	82.9	83.8	83.6	84.7	67.7	98.6	79.0	81.4	82.3
	HDR-4	79.1	70.4	75.5	86.0	80.8	74.6	92.5	95.4	80.5	80.8
	HDR-5	82.9	77.1	82.6	90.4	86.5	76.1	86.7	105.2	87.3	79.4
	HDR-6	76.1	82.2	85.9	84.2	84.4	78.4	96.0	77.0	78.3	92.2
	HDR-7	85.1	82.7	87.7	85.3	80.0	76.1	96.0	82.9	84.2	86.3
	HDR-8	78.7	78.3	84.9	89.0	82.7	77.7	76.8	81.2	77.0	81.7
	HDR-9	81.7	78.4	79.7	79.2	89.6	83.7	84.7	88.4	82.7	84.0
	HDR-10	72.4	73.2	82.1	86.7	86.3	76.3	94.4	89.1	87.2	81.0
	HDR-11	90.1	78.0	82.1	79.1	83.3	75.6	91.7	80.3	74.0	84.5
	LCS2	95.1	94.8	98.4	100.3	96.6	90.7	91.8	87.3	86.1	91.3
Dehydronifedipine	LCS1	107.2	94.0	96.4	110.1	96.9	96.9	114.0	100.1	100.2	96.4
	HDR-1	82.3	76.0	69.6	80.3	70.4	72.6	78.4	68.1	89.3	88.0
	HDR-2	89.6	83.4	87.4	81.9	75.6	74.0	75.7	71.7	83.8	93.6
	HDR-3	94.9	76.7	73.9	85.8	77.7	69.6	73.6	82.1	87.5	93.6
	HDR-4	90.0	88.0	77.7	84.5	72.8	73.5	73.6	78.7	89.2	84.9
	HDR-5	83.8	73.5	83.0	89.7	76.8	79.0	75.2	77.9	105.0	91.0
	HDR-6	94.9	81.7	86.6	79.3	83.8	76.1	84.8	76.9	93.0	91.0
	HDR-7	95.9	87.5	84.7	82.6	82.1	69.2	81.5	75.9	90.8	91.9
	HDR-8	85.2	75.1	72.2	79.6	76.5	65.3	76.3	73.0	91.8	85.4
	HDR-9	90.4	83.9	81.8	78.1	89.1	75.7	73.1	72.9	100.1	91.4
	HDR-10	90.6	77.8	77.8	82.7	89.7	68.3	86.5	81.5	100.1	97.8
	HDR-11	90.2	79.8	84.2	69.3	89.7	74.4	76.1	70.5	95.8	91.6
	LCS2	122.8	100.9	107.1	109.7	110.4	108.3	107.4	94.8	105.9	107.2
DIA	LCS1	100.1	101.2	101.3	109.2	98.9	101.9	99.5	102.5	95.7	98.8
	HDR-1	81.2	101.6	89.0	65.3	86.9	87.2	102.8	69.5	103.3	118.4
	HDR-2	108.3	107.3	101.1	86.1	74.2	87.0	106.7	96.1	100.2	88.4
	HDR-3	97.3	92.9	71.1	101.3	86.9	76.4	94.8	89.5	98.8	108.6
	HDR-4	92.5	84.1	70.3	123.5	77.5	85.5	103.2	84.6	94.8	81.7
	HDR-5	77.0	94.7	84.1	83.9	105.2	62.2	94.7	87.0	92.0	78.4
	HDR-6	80.2	87.5	82.2	101.9	66.6	70.9	106.2	107.4	113.5	87.6
	HDR-7	77.0	95.3	97.6	84.9	81.6	88.6	91.1	98.4	95.7	111.9
	HDR-8	74.6	76.2	84.9	67.6	72.9	85.3	102.8	89.0	92.2	86.1
	HDR-9	71.9	88.9	96.8	96.3	82.1	65.7	106.9	90.2	109.0	89.8
	HDR-10	71.5	92.6	80.5	81.9	73.0	69.2	106.9	97.2	103.9	93.1

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-11	93.4	81.9	89.2	60.3	93.4	77.4	77.0	66.2	78.3	119.4
	LCS2	94.3	103.1	103.0	101.5	99.8	102.1	100.6	103.5	93.8	96.5
Diazepam	LCS1	99.5	102.3	100.8	111.5	92.8	98.1	96.9	98.9	99.6	105.1
	HDR-1	85.1	89.5	79.8	88.5	85.4	85.3	98.4	91.2	112.8	115.8
	HDR-2	87.7	91.9	92.2	89.7	86.7	86.8	88.7	91.4	106.3	115.7
	HDR-3	91.5	91.2	87.4	98.0	85.6	77.8	89.8	94.9	105.1	113.1
	HDR-4	86.0	89.2	81.4	86.4	74.4	75.3	86.9	94.4	98.2	105.8
	HDR-5	87.7	88.4	87.0	92.2	82.9	85.0	93.8	113.0	109.0	115.1
	HDR-6	82.6	87.0	87.3	89.8	86.4	84.4	94.4	89.5	105.5	117.4
	HDR-7	88.9	91.3	95.7	92.8	85.4	86.8	90.8	89.1	103.1	118.9
	HDR-8	87.0	89.6	89.3	92.9	77.6	77.5	85.9	85.7	98.7	109.7
	HDR-9	87.5	87.4	85.5	82.9	87.9	86.9	88.4	96.5	115.6	109.0
	HDR-10	82.5	88.5	89.9	91.3	83.3	84.6	95.7	86.8	114.0	115.5
	HDR-11	93.0	91.2	85.9	77.0	86.4	83.2	91.5	88.8	109.1	119.9
	LCS2	101.4	106.5	102.1	107.0	97.1	99.1	95.0	105.3	94.7	108.5
Diclofenac- M-H	LCS1	98.5	98.1	98.7	104.8	92.2	97.7	100.1	108.2	137.3	105.6
	HDR-1	103.0	112.7	114.9	110.7	108.2	83.7	130.3	95.3	144.3	114.5
	HDR-2	97.0	96.7	106.1	96.7	86.4	79.7	113.4	100.7	99.1	112.3
	HDR-3	94.4	95.4	98.7	104.7	85.7	77.0	106.1	100.9	128.0	100.9
	HDR-4	94.2	103.5	101.5	111.7	90.6	73.2	100.3	102.5	98.1	107.1
	HDR-5	95.5	101.1	101.2	100.3	89.4	81.9	99.5	106.8	129.3	107.1
	HDR-6	96.5	100.8	98.6	106.2	96.8	79.1	110.2	104.7	137.7	106.8
	HDR-7	99.1	97.1	96.2	100.1	95.5	74.7	101.5	105.1	124.9	101.2
	HDR-8	99.1	99.3	100.1	99.0	98.1	68.1	99.2	105.4	132.1	97.2
	HDR-9	93.5	99.3	98.2	103.0	100.3	82.4	102.5	105.8	137.3	89.6
	HDR-10	95.0	93.7	97.1	95.5	94.9	72.9	101.6	100.1	136.9	109.0
	HDR-11	92.2	94.5	91.5	87.6	92.5	76.1	98.0	103.2	133.2	100.3
	LCS2	97.2	96.1	97.9	101.8	98.4	100.3	104.2	104.7	139.1	105.4
Dilantin - M-H	LCS1	82.5	95.1	87.8	104.5	79.0	81.1	95.1	102.5	97.2	97.9
	HDR-1	78.7	89.2	75.5	82.5	96.5	78.3	100.1	96.5	115.1	91.5
	HDR-2	89.8	90.4	92.7	96.4	99.3	81.1	88.1	77.9	110.2	101.2
	HDR-3	104.0	85.3	81.6	107.5	101.8	82.3	87.5	86.8	132.0	116.6
	HDR-4	94.3	96.5	85.1	103.2	97.1	86.3	102.4	102.2	122.9	101.6
	HDR-5	95.8	92.9	94.7	102.6	103.6	84.4	101.0	94.1	142.8	108.9
	HDR-6	99.8	96.2	98.3	97.3	117.2	79.3	115.3	96.8	167.7	102.8
	HDR-7	94.8	96.5	89.7	107.1	114.2	82.0	110.4	98.4	133.0	106.1
	HDR-8	93.8	82.7	89.2	104.6	103.4	72.3	119.4	93.1	137.4	113.0
	HDR-9	104.4	89.0	89.6	91.6	122.7	83.5	98.2	96.6	121.3	110.0
	HDR-10	104.3	84.0	92.5	97.3	115.0	84.3	126.7	95.1	142.7	102.3
	HDR-11	96.7	95.6	95.6	72.0	128.5	88.7	107.7	85.3	125.8	92.8
	LCS2	75.8	81.1	77.1	86.8	69.9	68.9	98.7	82.3	80.9	92.4
Diltiazem	LCS1	107.8	84.2	106.9	106.4	92.9	96.7	92.4	88.9	95.3	112.7
	HDR-1	181.7	192.9	200.3	236.1	148.5	184.1	179.2	119.1	134.8	134.8
	HDR-2	191.6	230.3	211.3	240.4	135.6	180.5	185.4	119.0	135.8	131.8
	HDR-3	181.4	206.5	207.3	229.3	124.7	174.6	165.1	119.9	127.2	123.7
	HDR-4	176.9	183.2	189.6	229.7	121.4	161.5	146.6	118.9	121.9	114.0
	HDR-5	183.7	211.1	203.7	226.8	128.4	190.1	154.3	151.3	139.7	125.3
	HDR-6	166.7	205.2	207.0	230.0	124.7	190.6	166.0	118.3	128.1	134.1

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-7	179.8	202.0	201.0	235.8	117.5	169.0	172.2	117.6	141.5	131.0
	HDR-8	173.7	200.2	207.9	242.1	114.4	169.2	143.8	105.6	124.4	119.8
	HDR-9	183.8	194.6	199.2	218.3	132.3	194.9	159.9	120.8	169.4	118.3
	HDR-10	162.2	188.1	224.7	228.2	134.6	191.1	163.8	134.6	144.5	122.7
	HDR-11	195.5	194.9	212.6	206.7	134.9	178.8	166.9	112.2	140.6	130.0
	LCS2	108.0	94.0	103.5	117.2	103.2	94.2	94.2	101.6	94.5	107.3
Diuron	LCS1	111.4	100.0	100.1	105.7	92.0	98.1	97.6	101.5	127.1	98.1
	HDR-1	93.0	98.9	88.2	94.8	91.4	88.1	97.2	101.4	123.1	103.3
	HDR-2	95.1	98.7	86.6	90.6	82.9	85.1	100.6	100.1	92.1	96.3
	HDR-3	94.2	95.0	88.9	91.2	82.8	85.4	95.6	104.5	126.2	99.8
	HDR-4	92.8	97.5	87.8	91.0	83.2	86.5	96.0	103.1	102.9	95.9
	HDR-5	94.2	101.4	91.7	92.6	87.1	88.3	103.8	104.0	114.8	101.5
	HDR-6	98.7	96.2	94.9	90.3	92.6	88.9	106.4	105.8	129.8	97.3
	HDR-7	95.1	98.6	94.1	88.1	90.1	83.2	101.8	104.7	120.4	94.2
	HDR-8	95.7	94.5	84.8	89.2	87.7	84.0	99.2	101.9	128.1	104.6
	HDR-9	96.9	99.1	90.1	88.1	93.1	86.5	104.3	107.7	131.6	93.0
	HDR-10	90.7	93.7	86.0	89.6	93.4	83.1	97.4	92.2	132.1	106.0
	HDR-11	96.1	89.7	83.7	75.9	90.4	89.3	101.3	107.5	122.2	94.4
	LCS2	100.9	100.8	91.5	105.7	95.5	97.3	99.0	111.6	123.3	99.2
Erythromycin	LCS1	97.7	78.4	99.4	91.0	104.0	95.4	82.8	95.0	120.4	108.5
	HDR-1	116.7	158.9	135.5	170.9	85.0	209.1	144.0	85.9	103.9	87.6
	HDR-2	96.9	162.2	127.2	148.3	73.8	207.4	148.4	89.0	80.3	83.5
	HDR-3	120.1	162.9	130.6	156.6	70.3	196.6	146.1	97.3	101.1	85.9
	HDR-4	118.8	173.1	149.5	161.5	71.0	189.1	145.0	88.6	73.9	74.6
	HDR-5	115.2	163.6	142.3	159.8	74.7	199.4	147.0	100.0	102.0	80.9
	HDR-6	101.5	181.1	133.1	169.4	81.3	214.5	163.4	101.1	113.6	78.1
	HDR-7	112.7	189.6	144.8	180.5	78.0	209.9	132.8	102.3	98.5	84.8
	HDR-8	112.1	164.4	146.0	180.7	78.1	195.0	130.1	93.5	102.2	66.4
	HDR-9	112.7	190.6	188.3	175.7	85.6	217.8	145.5	94.3	124.2	89.1
	HDR-10	101.9	169.3	156.8	156.6	87.4	197.5	146.2	96.0	117.8	88.6
	HDR-11	104.2	169.1	162.8	119.9	77.9	199.3	144.5	111.1	116.3	82.2
	LCS2	100.3	85.2	96.8	108.7	118.5	96.8	96.2	110.7	123.9	105.5
Estrone	LCS1	96.3	97.9	100.9	111.9	103.5	97.2	87.2	110.6	88.6	98.6
	HDR-1	106.3	99.8	102.4	132.6	110.7	83.1	106.0	111.1	106.2	95.2
	HDR-2	96.7	116.8	112.4	136.3	111.0	86.0	92.3	82.5	119.1	92.8
	HDR-3	117.9	106.7	125.2	147.0	97.3	76.1	93.6	85.8	94.9	102.4
	HDR-4	101.2	98.2	90.7	127.0	81.9	72.1	88.7	99.2	102.8	90.2
	HDR-5	106.7	97.4	112.5	118.3	102.8	92.6	89.8	137.9	128.2	73.0
	HDR-6	98.7	97.7	105.8	124.4	86.5	88.1	124.5	84.3	132.9	95.9
	HDR-7	106.2	111.0	105.9	125.5	100.1	86.5	90.5	104.3	100.0	90.7
	HDR-8	119.3	95.6	110.2	135.4	82.6	79.5	94.0	98.8	99.8	85.6
	HDR-9	107.8	92.4	108.0	117.0	82.7	79.7	94.1	107.4	111.9	87.1
	HDR-10	103.5	103.5	100.7	122.1	91.5	86.0	111.3	133.9	111.8	89.3
	HDR-11	121.1	107.8	95.8	118.7	98.2	82.7	77.9	98.6	127.3	88.4
	LCS2	104.4	95.3	100.5	111.9	97.4	95.0	99.6	101.8	112.3	82.8
Ethylparaben	LCS1	100.2	93.3	93.7	100.2	90.9	98.5	93.0	103.5	130.1	94.8
	HDR-1	103.6	108.7	109.0	117.6	101.8	119.1	113.3	105.8	151.2	125.6
	HDR-2	104.6	103.9	106.8	110.5	88.7	112.2	114.2	108.4	116.5	129.2

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-3	101.7	109.7	106.7	110.5	93.5	93.8	105.3	112.6	156.1	127.8
	HDR-4	105.5	111.0	106.6	115.1	95.7	113.3	109.0	108.1	126.1	121.3
	HDR-5	103.4	105.0	107.5	115.6	94.1	121.9	112.2	122.6	151.5	124.0
	HDR-6	106.6	108.7	107.0	112.9	101.9	119.2	120.3	105.8	166.3	122.3
	HDR-7	106.4	109.3	107.7	112.9	107.1	99.7	111.4	113.8	143.6	120.8
	HDR-8	106.6	103.2	104.2	114.1	102.4	93.5	108.6	110.4	148.2	120.0
	HDR-9	106.4	107.9	102.3	114.2	109.6	116.0	116.3	107.9	166.4	116.9
	HDR-10	109.7	107.4	106.3	108.8	105.4	110.3	114.5	103.1	158.1	132.0
	HDR-11	106.1	107.7	105.2	58.8	101.1	115.4	112.6	113.6	156.5	117.8
	LCS2	96.1	92.1	95.4	104.0	98.4	93.3	105.9	117.1	121.0	99.8
Flumequine	LCS1	97.6	91.9	92.0	109.6	95.4	93.4	96.2	98.6	112.4	94.6
	HDR-1	99.8	117.0	99.9	112.8	86.6	107.9	120.2	112.2	145.9	159.6
	HDR-2	113.4	110.5	107.5	109.5	95.0	100.8	101.6	127.7	135.2	149.7
	HDR-3	108.8	104.2	95.6	113.4	99.3	90.9	107.7	122.9	132.0	141.6
	HDR-4	112.7	107.4	96.0	114.8	86.2	95.0	101.0	127.8	131.2	126.4
	HDR-5	100.2	98.5	102.2	118.8	92.0	97.8	113.1	116.4	138.8	140.6
	HDR-6	105.4	108.1	107.9	113.2	97.7	95.8	109.8	113.4	145.0	132.3
	HDR-7	117.4	103.0	115.9	112.5	97.3	92.4	108.1	111.1	125.0	135.2
	HDR-8	99.0	97.3	95.1	101.4	87.4	87.5	107.5	109.2	125.6	132.5
	HDR-9	106.0	107.6	108.2	107.8	106.2	97.7	102.9	104.7	121.4	153.1
	HDR-10	109.6	94.1	96.9	116.2	114.3	95.1	108.8	155.6	130.7	128.5
	HDR-11	114.7	104.9	115.3	74.4	106.6	100.8	97.0	108.1	116.9	127.7
	LCS2	105.0	98.8	103.1	105.4	100.8	95.9	104.7	91.0	112.4	108.6
Fluoxetine	LCS1	110.8	97.3	108.1	113.4	95.6	97.8	67.3	97.8	101.1	99.0
	HDR-1	136.2	227.6	166.9	203.4	67.1	194.2	75.8	83.0	88.8	84.8
	HDR-2	141.5	188.5	196.9	240.2	66.6	217.6	87.4	77.7	75.3	107.0
	HDR-3	156.9	247.2	278.1	265.4	64.4	193.6	81.8	81.0	77.6	72.9
	HDR-4	134.5	160.8	166.0	208.1	70.6	180.5	60.7	83.7	75.1	68.6
	HDR-5	152.5	130.8	169.2	180.3	63.7	185.5	81.6	103.6	83.9	81.3
	HDR-6	144.1	163.6	191.6	224.1	70.3	183.6	76.3	82.0	122.3	91.4
	HDR-7	164.3	184.5	218.1	216.5	60.4	245.5	100.8	70.8	81.9	116.1
	HDR-8	168.0	227.6	259.3	256.7	64.2	171.1	61.1	75.0	76.6	78.6
	HDR-9	153.8	132.6	215.4	197.1	65.8	174.6	68.4	88.9	82.1	79.9
	HDR-10	145.9	147.1	215.7	249.2	71.4	174.1	72.2	133.9	91.2	82.5
	HDR-11	154.2	155.7	209.7	151.4	72.4	229.5	70.1	85.7	83.1	91.7
	LCS2	113.7	111.9	109.7	106.4	97.1	113.8	70.3	116.4	95.5	127.9
Gemfibrozil	LCS1	104.6	101.7	105.6	101.2	108.8	93.8	98.6	99.5	83.4	111.6
	HDR-1	120.9	109.7	116.3	115.8	81.2	63.8	88.3	94.7	137.2	189.6
	HDR-2	107.5	113.1	119.3	113.7	77.2	66.2	79.3	79.0	137.6	189.7
	HDR-3	117.1	121.0	119.2	111.8	81.2	63.1	85.2	86.6	135.2	230.1
	HDR-4	120.0	110.1	110.4	107.6	86.1	65.7	84.5	93.8	138.8	205.3
	HDR-5	119.4	121.7	114.1	123.4	110.5	72.9	83.6	94.5	142.2	152.0
	HDR-6	102.0	114.5	118.4	119.4	136.7	63.7	90.6	94.7	130.8	215.3
	HDR-7	109.5	116.7	119.8	126.4	134.9	58.6	84.8	76.6	135.9	166.7
	HDR-8	114.5	114.6	121.1	107.6	125.8	60.9	82.8	94.8	129.8	179.1
	HDR-9	117.6	116.5	120.5	110.7	144.1	65.9	87.7	96.9	138.5	187.9
	HDR-10	106.5	113.3	123.4	120.8	143.3	66.1	76.9	43.2	145.6	182.1
	HDR-11	119.5	113.1	116.7	95.5	140.6	64.2	87.7	88.6	143.6	176.3

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	LCS2	107.5	101.3	100.7	108.3	139.8	92.5	107.9	97.4	87.5	93.1
Ibuprofen	LCS1	100.2	106.8	94.1	103.0	87.0	100.1	91.8	102.5	135.6	91.5
	HDR-1	100.3	104.8	95.2	110.5	107.8	90.0	108.9	113.3	146.9	114.2
	HDR-2	99.3	100.5	95.3	102.2	94.8	86.5	105.1	108.8	108.3	117.8
	HDR-3	106.3	103.3	93.0	98.3	89.1	88.5	99.4	111.9	140.7	109.1
	HDR-4	101.1	103.1	98.6	99.6	91.9	85.2	102.0	98.7	123.3	113.0
	HDR-5	96.6	99.9	98.9	101.9	78.7	91.1	100.7	114.9	138.7	113.1
	HDR-6	96.2	101.4	96.9	93.4	80.3	83.8	108.1	118.5	154.5	114.1
	HDR-7	95.0	99.1	99.3	94.8	76.0	88.5	99.4	111.9	140.8	108.1
	HDR-8	100.0	105.4	91.2	104.3	77.2	82.9	96.4	107.8	143.1	107.1
	HDR-9	102.2	99.2	92.2	94.0	81.5	88.1	99.6	109.7	161.9	111.0
	HDR-10	99.4	99.8	99.7	97.6	75.4	83.2	106.7	118.5	150.4	116.5
	HDR-11	101.6	100.8	91.2	84.6	75.8	80.1	99.9	113.9	158.2	108.9
	LCS2	100.1	97.9	93.0	107.7	80.4	96.2	95.8	107.2	129.6	91.4
Iohexol - M+H	LCS1	132.2	95.6	100.1	117.6	85.6	108.8	103.2	120.7	138.5	107.9
	HDR-1	74.4	96.3	84.6	90.3	76.3	75.4	74.5	121.2	171.7	129.6
	HDR-2	101.0	79.6	81.2	93.0	66.6	67.6	68.5	102.9	84.8	105.6
	HDR-3	64.6	67.2	79.0	84.2	68.7	90.9	64.8	104.0	128.2	97.1
	HDR-4	84.2	86.9	86.1	90.7	63.8	95.9	72.7	96.4	117.5	100.5
	HDR-5	73.5	100.9	72.6	85.1	72.7	95.8	86.2	116.3	117.9	106.5
	HDR-6	102.8	87.2	101.7	102.9	59.1	86.5	69.5	93.0	109.7	103.9
	HDR-7	67.5	83.0	75.0	89.0	62.8	79.8	73.8	106.9	115.9	124.2
	HDR-8	88.8	70.9	83.8	93.4	74.3	75.0	83.4	99.4	111.5	108.6
	HDR-9	96.4	73.8	90.1	84.3	62.2	90.1	79.5	107.3	144.2	113.6
	HDR-10	105.3	84.4	105.5	76.8	56.3	76.4	87.0	88.6	162.3	129.9
	HDR-11	107.1	95.0	60.6	40.3	70.4	80.2	76.1	95.1	166.9	120.6
	LCS2	127.7	115.0	126.2	117.0	113.4	97.1	102.4	127.4	132.1	124.3
Iopromide - PRM	LCS1	103.0	93.1	102.8	110.3	94.3	86.0	108.9	88.7	103.1	87.3
	HDR-1	86.0	70.5	52.6	91.1	64.1	83.3	65.6	53.5	103.3	101.5
	HDR-2	98.2	74.1	78.6	99.4	69.0	63.7	66.2	58.2	111.8	111.3
	HDR-3	95.5	57.1	62.4	99.5	73.9	66.8	55.4	72.2	77.8	111.0
	HDR-4	87.6	91.3	74.4	99.1	69.5	80.7	78.0	73.2	99.2	91.0
	HDR-5	97.4	67.2	76.5	111.5	74.5	78.4	59.6	72.2	98.9	97.6
	HDR-6	96.3	92.6	84.3	94.8	78.3	80.6	80.3	82.1	93.7	94.9
	HDR-7	102.6	90.5	77.9	104.1	76.8	75.8	63.1	76.3	85.9	91.2
	HDR-8	88.8	76.2	68.2	91.7	76.6	63.8	73.2	86.3	95.7	102.1
	HDR-9	106.8	90.5	75.6	88.2	92.0	76.3	69.1	71.8	94.5	84.8
	HDR-10	106.5	77.6	76.6	118.7	103.2	70.5	81.1	153.7	99.7	106.2
	HDR-11	102.5	79.0	81.3	49.4	95.7	78.0	63.8	74.7	84.4	89.5
	LCS2	127.1	136.0	136.6	131.5	131.3	111.7	123.7	95.2	123.3	130.2
Isobuylparaben	LCS1	98.2	94.9	101.7	96.5	88.8	96.0	93.8	99.7	124.3	96.3
	HDR-1	99.9	101.5	100.2	104.9	92.5	105.3	129.4	107.8	151.3	118.8
	HDR-2	90.9	96.5	95.6	102.1	89.1	96.0	126.2	106.9	110.2	118.1
	HDR-3	98.1	96.3	92.3	100.1	89.0	98.0	122.7	108.3	139.9	118.8
	HDR-4	97.5	100.6	96.9	100.4	87.0	95.1	120.2	100.7	127.7	105.3
	HDR-5	94.7	100.3	100.8	99.7	88.7	102.2	115.7	110.8	141.2	113.3
	HDR-6	99.2	98.5	98.8	97.1	94.0	98.9	125.1	108.6	162.9	117.9
	HDR-7	94.5	103.2	98.5	98.2	95.2	97.6	118.3	108.5	143.4	116.4

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-8	102.3	92.6	96.4	100.8	94.2	91.7	118.2	107.8	143.9	113.4
	HDR-9	96.5	96.6	95.8	101.6	95.6	104.6	121.4	110.3	165.8	115.3
	HDR-10	92.8	92.4	98.7	96.2	95.4	96.1	115.6	99.0	166.0	119.6
	HDR-11	95.4	100.0	92.6	77.0	91.7	94.7	118.1	104.6	153.8	112.8
	LCS2	95.8	91.7	87.1	97.5	95.0	84.8	103.1	113.9	120.3	94.5
isoproturon	LCS1	101.4	108.7	98.2	109.9	99.8	97.1	106.3	98.9	106.7	96.1
	HDR-1	96.1	99.4	85.2	95.2	101.2	101.5	108.7	89.6	120.5	115.2
	HDR-2	108.7	101.1	103.9	101.0	102.1	98.6	111.7	95.5	123.8	140.3
	HDR-3	113.5	95.8	94.7	103.2	103.6	90.0	101.8	99.1	116.7	125.7
	HDR-4	105.5	107.4	93.2	99.4	106.7	102.4	103.5	99.1	114.4	118.3
	HDR-5	106.9	100.5	94.7	110.6	109.0	110.3	104.0	94.6	131.1	120.9
	HDR-6	112.5	102.1	103.3	92.2	118.3	100.6	111.6	92.5	117.3	131.8
	HDR-7	115.2	102.8	102.9	93.5	114.7	97.9	106.3	91.9	118.2	119.8
	HDR-8	103.3	94.7	92.4	94.1	109.2	89.4	107.6	87.3	117.1	116.4
	HDR-9	115.5	101.3	101.0	93.4	132.7	102.8	97.3	91.5	110.9	117.8
	HDR-10	112.7	101.9	94.5	102.5	128.9	90.4	115.4	106.6	116.9	120.7
	HDR-11	113.1	96.9	103.8	83.8	126.1	100.4	105.4	89.1	109.6	116.0
	LCS2	121.7	111.6	113.3	111.8	116.9	103.3	113.3	92.4	106.1	105.1
Ketoprofen	LCS1	95.4	101.7	94.9	115.3	108.2	93.2	104.8	100.3	103.3	105.6
	HDR-1	67.1	69.6	53.1	73.2	73.9	57.0	62.6	70.4	76.0	73.1
	HDR-2	72.8	75.3	68.3	71.7	75.9	52.0	62.9	82.0	82.5	86.8
	HDR-3	77.1	65.1	60.4	80.5	84.9	48.3	57.8	82.5	77.5	86.8
	HDR-4	76.3	72.8	61.5	75.8	75.6	54.9	71.8	85.2	78.6	83.7
	HDR-5	78.3	64.4	60.3	83.5	77.1	55.5	61.1	75.7	80.5	81.9
	HDR-6	79.0	77.0	71.1	74.4	87.6	58.4	74.8	72.6	83.4	88.6
	HDR-7	82.1	72.9	67.0	76.1	82.1	56.6	67.0	74.9	85.4	75.7
	HDR-8	75.6	61.6	57.7	73.7	84.0	47.5	69.9	78.1	79.0	67.8
	HDR-9	78.2	71.4	59.1	73.0	89.6	56.5	62.1	83.1	74.6	77.3
	HDR-10	75.8	67.9	60.1	76.8	86.9	49.9	75.2	63.5	81.1	83.2
	HDR-11	71.1	68.2	65.3	56.2	88.4	57.3	59.6	72.8	70.1	79.7
	LCS2	93.7	81.2	79.1	87.6	104.6	97.2	86.6	86.4	90.3	88.4
Ketorolac	LCS1	98.5	101.4	94.3	112.9	107.7	89.6	107.6	96.0	98.4	107.9
	HDR-1	66.9	70.7	57.3	71.8	76.7	52.8	68.5	62.3	73.8	79.9
	HDR-2	79.4	66.7	63.1	72.7	60.1	45.0	57.8	55.9	70.1	74.8
	HDR-3	76.5	59.9	59.8	66.5	63.1	46.4	56.8	61.0	67.9	93.2
	HDR-4	65.7	63.9	56.2	67.8	70.7	43.0	55.6	75.7	73.1	80.5
	HDR-5	62.5	63.4	67.1	80.3	76.8	55.5	60.6	59.7	73.4	78.2
	HDR-6	70.1	70.2	69.0	71.3	80.2	51.0	61.1	56.9	69.1	85.5
	HDR-7	72.9	71.1	63.1	70.4	85.4	46.2	61.5	64.2	68.2	78.8
	HDR-8	64.7	63.7	64.3	62.9	70.2	42.6	57.9	50.6	69.4	80.3
	HDR-9	64.6	70.2	67.4	63.8	86.7	50.2	55.0	58.9	68.9	73.8
	HDR-10	73.6	58.9	63.5	76.0	86.3	49.7	62.8	58.8	77.2	79.3
	HDR-11	72.7	60.9	65.4	67.8	83.9	47.4	55.6	68.5	60.7	73.2
	LCS2	93.9	91.5	90.8	93.4	120.0	97.3	89.7	87.1	95.4	119.9
Lidocaine	LCS1	100.3	101.6	94.9	110.2	101.1	96.8	104.0	100.3	94.0	105.3
	HDR-1	88.6	103.6	84.2	104.9	90.6	68.8	117.0	85.6	75.3	107.3
	HDR-2	102.7	102.6	97.7	126.1	83.3	74.2	110.3	86.9	69.5	109.7
	HDR-3	112.9	100.2	100.8	129.2	91.3	75.5	99.1	98.3	77.3	99.7

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-4	89.8	104.2	89.9	113.8	92.5	70.9	98.6	92.9	65.0	96.7
	HDR-5	101.9	94.5	96.4	121.1	92.2	85.4	102.6	82.2	82.6	100.3
	HDR-6	95.5	111.0	91.7	117.4	88.4	82.0	125.1	88.3	80.7	96.8
	HDR-7	105.0	109.2	95.7	113.8	99.9	75.9	97.1	82.0	71.9	88.7
	HDR-8	93.5	93.1	89.5	120.4	90.7	70.3	90.6	78.2	74.8	84.8
	HDR-9	108.1	103.5	105.5	110.9	116.2	88.4	110.1	94.8	81.5	102.0
	HDR-10	106.1	104.6	104.4	130.1	106.2	76.7	112.2	125.8	72.2	107.6
	HDR-11	99.4	97.4	98.3	97.9	108.3	82.3	103.9	85.8	67.4	108.1
	LCS2	123.0	115.4	106.3	115.1	125.0	102.5	119.6	102.6	101.7	140.3
Lincomycin	LCS1	99.4	90.1	99.1	108.5	81.6	89.2	86.7	91.1	115.6	108.5
	HDR-1	112.4	147.9	139.1	131.2	86.1	120.4	126.7	111.3	117.1	132.1
	HDR-2	126.8	134.3	136.4	154.4	127.6	140.6	110.9	161.2	130.4	122.0
	HDR-3	121.2	74.0	122.9	184.2	96.8	93.4	118.1	165.0	104.9	143.7
	HDR-4	92.1	138.6	117.4	145.8	105.2	134.0	93.7	132.5	137.8	111.5
	HDR-5	108.5	102.6	119.4	166.5	99.5	164.2	92.9	134.9	132.6	139.9
	HDR-6	85.5	143.3	134.1	136.0	83.8	142.6	99.2	130.0	117.8	126.7
	HDR-7	104.5	106.7	131.5	156.4	122.6	136.2	99.1	156.4	99.9	139.5
	HDR-8	79.6	139.2	138.0	158.1	97.3	112.6	87.9	116.9	118.0	136.8
	HDR-9	120.8	77.6	173.9	136.9	85.3	131.1	99.1	108.3	109.5	120.1
	HDR-10	90.0	120.4	107.3	137.2	117.5	118.2	98.5	173.8	142.8	115.8
	HDR-11	71.8	126.5	92.4	80.4	100.6	119.7	94.4	154.7	131.8	114.0
	LCS2	106.9	100.6	104.9	106.6	121.2	95.4	96.6	94.0	152.7	127.7
Linuron	LCS1	104.0	99.3	105.7	104.4	93.4	101.3	89.3	104.4	127.2	96.6
	HDR-1	95.4	88.6	92.1	88.1	86.0	80.9	92.1	101.1	155.0	110.4
	HDR-2	92.1	86.8	97.0	88.5	77.7	75.2	98.0	102.5	101.9	113.0
	HDR-3	90.4	87.1	90.8	88.2	80.2	70.0	91.5	103.5	138.4	106.0
	HDR-4	87.2	91.3	90.3	91.5	78.4	75.2	85.8	99.5	123.0	110.5
	HDR-5	90.4	94.6	86.3	88.1	81.7	80.7	93.9	105.6	130.7	114.7
	HDR-6	95.6	88.3	92.5	87.4	83.5	77.8	97.9	110.8	142.7	109.0
	HDR-7	91.3	85.8	92.5	85.4	85.0	76.3	89.8	102.4	138.9	102.9
	HDR-8	89.3	85.6	88.5	87.3	82.5	74.9	85.9	109.8	144.1	103.1
	HDR-9	88.7	90.4	92.9	84.4	90.1	75.5	88.6	108.1	147.3	102.1
	HDR-10	90.5	84.6	88.3	88.8	79.7	71.9	88.5	101.3	158.8	102.7
	HDR-11	89.4	87.9	91.9	65.1	82.9	69.9	92.1	110.1	150.3	103.0
	LCS2	104.7	94.7	101.5	98.3	97.1	100.8	94.6	112.4	131.2	97.3
Lopressor-Metoprolol	LCS1	112.9	103.7	100.7	104.3	94.6	109.0	97.4	110.8	125.9	125.3
	HDR-1	110.8	112.9	92.8	114.2	99.5	104.0	131.0	111.6	124.0	108.7
	HDR-2	102.3	118.9	104.9	105.4	93.3	96.7	124.2	110.1	92.0	116.0
	HDR-3	112.8	112.5	107.6	108.2	93.4	100.3	137.0	113.2	119.4	122.3
	HDR-4	116.2	125.3	106.0	111.7	101.1	94.2	119.9	114.3	109.6	107.7
	HDR-5	112.8	113.1	110.4	117.2	101.4	92.3	124.3	133.1	126.0	124.1
	HDR-6	108.2	115.0	108.2	107.9	105.5	93.3	130.3	121.8	135.1	123.6
	HDR-7	119.2	116.6	108.0	119.3	105.1	92.1	118.4	128.1	106.2	114.0
	HDR-8	110.1	114.0	112.6	115.5	105.4	90.7	125.5	113.5	131.2	117.5
	HDR-9	123.7	105.6	114.9	108.8	107.6	103.6	133.0	131.9	142.2	117.3
	HDR-10	123.5	117.4	113.0	108.6	112.2	85.9	131.1	137.1	135.7	130.7
	HDR-11	111.0	115.1	112.9	87.3	104.9	95.3	132.1	127.2	135.8	131.9
	LCS2	116.2	111.5	97.2	109.5	98.5	106.3	104.9	120.9	114.7	132.9

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
Meclofenamic Acid	LCS1	98.4	96.2	97.6	107.0	92.4	97.4	100.1	108.3	137.3	105.7
	HDR-1	102.9	109.7	114.0	112.8	108.3	83.5	130.3	95.3	144.3	114.6
	HDR-2	97.5	94.2	106.0	97.5	86.5	79.5	113.4	100.7	99.2	112.4
	HDR-3	94.5	92.7	98.0	106.5	85.9	76.9	106.3	100.9	128.0	101.0
	HDR-4	94.1	103.7	100.5	112.2	90.7	73.1	100.3	102.5	98.1	107.2
	HDR-5	95.4	98.3	100.2	104.4	89.6	81.7	99.4	106.8	129.4	107.2
	HDR-6	96.5	97.2	97.6	105.9	96.9	79.0	110.2	104.7	137.7	106.9
	HDR-7	99.0	93.8	95.3	102.5	95.6	74.6	101.5	105.1	124.9	101.3
	HDR-8	99.1	96.2	100.6	97.7	98.2	68.0	99.2	105.4	132.1	97.3
	HDR-9	93.4	95.7	97.2	104.4	100.5	82.3	102.8	105.8	137.3	89.7
	HDR-10	94.9	92.2	96.3	95.0	95.0	73.3	101.6	100.1	136.9	109.1
	HDR-11	92.1	92.1	90.6	86.5	92.6	75.9	98.0	103.2	133.2	100.4
	LCS2	97.2	92.7	97.5	102.4	98.5	100.1	104.2	104.7	139.1	105.5
Meprobamate	LCS1	102.4	93.4	95.4	114.0	110.9	92.5	104.3	99.4	101.2	111.6
	HDR-1	103.6	77.9	95.0	61.9	104.7	240.8	99.1	101.9	71.9	76.2
	HDR-2	126.4	107.8	138.8	70.4	75.5	191.0	62.1	43.4	97.1	53.3
	HDR-3	93.8	77.7	69.6	106.1	88.4	262.9	67.1	86.6	65.5	31.7
	HDR-4	74.0	107.1	63.1	145.4	106.8	169.3	75.1	97.3	75.8	41.9
	HDR-5	90.5	69.5	122.0	57.8	107.2	194.3	90.9	77.2	94.4	61.2
	HDR-6	104.4	100.9	118.4	92.0	54.6	264.1	40.5	72.6	75.0	50.0
	HDR-7	74.8	99.6	98.2	89.0	107.9	212.9	67.1	74.4	76.4	76.5
	HDR-8	98.4	72.4	120.9	80.9	131.4	169.8	80.2	87.4	81.9	71.0
	HDR-9	115.6	130.0	129.0	91.5	73.4	177.5	78.1	91.4	82.3	62.1
	HDR-10	95.3	115.0	123.2	113.5	95.1	192.4	86.2	73.9	66.6	38.4
	HDR-11	111.1	92.3	123.9	73.7	112.2	154.0	76.6	81.9	78.6	51.4
	LCS2	121.1	116.9	119.4	126.4	133.5	110.9	123.7	104.7	108.6	110.2
Metazachlor	LCS1	91.5	100.7	94.8	112.8	98.6	94.4	105.1	92.0	104.7	115.2
	HDR-1	61.4	65.1	49.6	47.9	30.4	16.9	10.4	5.1	3.9	-1.6
	HDR-2	67.1	63.2	54.3	53.6	32.8	16.2	10.8	5.4	4.3	-2.2
	HDR-3	73.1	61.1	51.3	53.5	36.0	14.7	9.8	5.7	4.1	-2.3
	HDR-4	70.9	66.8	51.7	53.4	35.2	16.5	9.4	4.2	4.2	-2.4
	HDR-5	72.2	59.4	53.5	58.7	33.9	16.2	8.9	5.1	5.0	-1.9
	HDR-6	73.8	63.3	57.7	52.3	35.4	16.4	9.3	4.2	4.5	-1.9
	HDR-7	72.9	65.0	53.6	51.2	34.9	14.8	10.5	5.0	5.0	-2.3
	HDR-8	67.4	64.6	50.9	52.9	32.6	13.2	9.1	4.5	4.1	-2.2
	HDR-9	72.1	65.3	51.4	52.0	38.9	16.3	8.9	5.9	3.8	-2.2
	HDR-10	75.5	66.0	47.4	57.0	41.3	14.5	8.7	3.4	6.3	-2.4
	HDR-11	71.1	66.6	53.1	40.5	38.8	15.6	10.3	3.2	3.8	-2.1
	LCS2	111.2	106.3	93.9	105.2	114.1	101.0	110.1	87.8	106.1	122.0
Metformin	LCS1	90.1	87.4	105.4	112.9	120.3	88.1	101.0	106.4	110.4	112.5
	HDR-1	174.5	125.6	165.6	154.1	128.7	121.7	121.2	165.0	140.9	143.5
	HDR-2	195.4	136.8	155.1	151.2	166.6	133.4	133.4	118.4	140.7	162.5
	HDR-3	170.3	123.3	181.8	245.6	136.9	117.6	149.9	129.3	103.7	181.3
	HDR-4	140.4	96.7	122.6	105.0	136.7	115.6	128.0	78.7	108.7	164.1
	HDR-5	122.0	172.6	166.5	197.9	159.9	161.1	172.0	95.8	117.8	160.0
	HDR-6	134.4	128.3	143.5	147.4	131.6	189.4	132.1	81.5	150.0	164.0
	HDR-7	167.6	159.4	131.8	152.7	147.1	163.3	125.3	105.5	114.6	200.8
	HDR-8	160.6	133.7	250.2	170.6	133.6	135.5	170.7	116.7	166.2	130.0

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-9	117.1	133.1	210.3	133.9	117.2	125.2	124.3	96.9	129.2	155.8
	HDR-10	149.2	120.5	140.0	150.0	158.6	143.2	124.9	161.7	126.6	174.1
	HDR-11	193.2	159.6	135.1	N/A	153.6	119.3	137.4	79.2	124.3	179.4
	LCS2	110.8	72.4	81.2	116.5	103.6	80.8	122.6	91.2	94.4	107.0
Methylparaben - M-H	LCS1	96.7	97.1	93.4	105.9	89.1	93.2	92.5	99.9	127.8	91.1
	HDR-1	117.9	141.0	131.0	134.9	130.4	112.7	155.2	119.5	167.5	127.0
	HDR-2	122.9	122.8	107.7	118.6	104.7	125.2	127.2	122.7	125.4	119.5
	HDR-3	129.4	125.6	117.1	111.6	110.8	107.7	143.1	114.3	161.2	120.5
	HDR-4	121.7	133.5	105.9	127.9	112.6	114.9	129.1	116.7	138.1	114.1
	HDR-5	118.7	126.2	113.2	109.3	114.5	125.7	131.6	124.6	152.9	126.5
	HDR-6	124.5	131.5	130.9	128.9	124.3	112.6	140.5	130.9	171.7	100.2
	HDR-7	129.0	123.8	103.1	118.4	117.8	109.8	144.6	127.8	153.3	125.0
	HDR-8	118.4	103.6	111.7	119.1	116.5	114.1	140.7	117.6	161.8	106.5
	HDR-9	133.2	126.5	124.9	130.4	122.4	108.9	142.7	127.2	189.1	132.0
	HDR-10	123.9	114.3	116.4	129.3	125.2	111.5	149.9	122.4	168.4	121.4
	HDR-11	127.4	117.7	111.2	84.9	110.3	106.1	149.7	122.6	161.6	111.3
	LCS2	97.0	96.3	85.9	107.6	99.9	90.3	107.3	113.7	126.4	88.9
Metolachlor	LCS1	105.0	101.0	104.1	108.2	95.3	102.8	102.9	105.7	100.8	96.6
	HDR-1	85.8	88.5	75.8	76.4	61.9	42.4	39.1	25.6	26.6	18.7
	HDR-2	90.5	90.5	84.9	80.4	58.6	43.7	41.0	25.5	25.3	18.3
	HDR-3	91.9	84.7	82.8	79.9	57.0	39.9	38.2	26.4	25.5	17.9
	HDR-4	88.5	80.5	80.1	76.7	54.0	39.4	35.5	25.3	24.0	15.7
	HDR-5	91.1	84.3	81.1	78.8	58.2	45.3	37.8	30.5	27.9	17.4
	HDR-6	86.7	86.9	81.8	78.2	60.2	43.3	40.0	25.8	25.7	18.8
	HDR-7	92.5	90.0	84.6	80.1	56.3	41.7	40.0	27.1	25.1	18.4
	HDR-8	88.8	85.3	81.7	79.0	54.8	40.7	35.4	25.1	25.1	17.3
	HDR-9	93.8	84.3	78.2	76.3	62.0	45.0	38.2	25.3	27.0	17.2
	HDR-10	84.6	82.0	83.3	78.8	59.3	43.8	37.1	29.1	28.1	18.4
	HDR-11	101.7	84.4	78.6	62.3	57.7	42.8	40.7	25.1	26.2	17.6
	LCS2	107.5	100.8	104.3	105.2	102.9	98.1	100.7	98.4	94.2	95.1
Naproxen	LCS1	106.8	95.1	98.0	107.5	91.0	89.9	99.8	102.4	123.1	93.0
	HDR-1	119.1	126.7	107.2	127.5	116.1	107.3	156.6	134.1	150.7	155.8
	HDR-2	117.6	111.5	124.3	123.1	88.3	94.5	128.4	134.2	100.5	119.5
	HDR-3	124.4	124.8	122.7	106.4	96.0	90.4	123.3	134.0	158.2	132.4
	HDR-4	121.5	113.2	109.9	120.8	96.8	87.6	110.0	119.9	113.1	130.0
	HDR-5	134.1	118.6	125.6	127.0	94.6	104.5	132.3	129.2	144.1	115.8
	HDR-6	128.7	112.2	108.3	119.0	114.3	94.7	111.2	126.9	147.0	127.8
	HDR-7	123.9	125.6	115.7	119.5	114.0	86.4	117.6	129.5	132.1	121.7
	HDR-8	130.8	113.1	112.2	115.7	111.0	94.4	120.9	120.2	125.7	111.4
	HDR-9	125.1	108.5	129.2	130.6	109.3	103.3	116.9	127.1	159.0	112.0
	HDR-10	119.4	113.1	108.7	105.7	101.6	94.1	117.5	145.9	161.8	128.1
	HDR-11	126.8	115.2	106.4	89.5	98.5	96.7	112.3	145.4	130.8	108.7
	LCS2	99.2	92.2	97.5	103.2	102.2	90.8	96.8	109.8	116.3	98.5
Nifedipine	LCS1	36.2	80.4	72.9	91.8	52.5	70.1	71.6	86.0	85.2	89.4
	HDR-1	98.3	116.3	118.3	163.6	144.2	105.8	157.2	134.1	247.4	125.0
	HDR-2	104.5	115.1	117.5	163.3	142.0	101.6	167.5	140.6	228.0	137.9
	HDR-3	103.0	128.0	131.0	165.0	155.1	105.5	173.6	141.1	255.6	137.6
	HDR-4	109.7	128.4	123.4	175.3	149.4	97.4	178.7	136.0	209.8	127.1

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-5	106.9	126.5	135.6	173.4	150.0	108.2	178.8	147.9	262.8	147.4
	HDR-6	109.1	120.8	137.6	167.1	169.6	106.8	190.2	149.3	279.1	151.7
	HDR-7	108.6	119.7	128.7	171.0	168.1	106.7	180.5	151.0	256.7	136.0
	HDR-8	110.6	123.4	124.2	175.7	156.7	97.8	184.7	146.2	261.9	137.6
	HDR-9	111.1	127.3	122.2	172.7	171.6	113.0	186.8	148.2	292.9	138.0
	HDR-10	101.7	130.4	121.6	162.8	168.3	96.4	199.2	122.9	287.4	139.4
	HDR-11	103.5	127.0	122.0	125.3	160.2	103.9	188.6	150.6	278.2	136.4
	LCS2	28.4	53.4	50.3	54.8	42.6	41.7	63.5	85.9	73.5	66.8
Nonyl-phenol	LCS1	72.9	86.1	101.1	111.9	98.5	69.5	76.9	96.9	107.8	84.4
	HDR-1	117.0	226.0	214.2	305.7	91.8	200.0	243.1	129.1	156.9	180.4
	HDR-2	125.4	232.2	224.8	290.9	79.4	158.0	221.1	155.6	163.8	159.1
	HDR-3	118.9	190.5	207.4	296.5	69.5	164.0	217.5	152.0	171.3	126.0
	HDR-4	120.9	225.3	232.9	316.0	82.8	171.5	175.3	119.8	152.2	111.9
	HDR-5	117.9	202.6	231.6	324.0	83.0	186.2	200.6	138.8	169.0	142.8
	HDR-6	120.4	216.5	233.0	281.7	85.9	182.9	226.8	150.2	177.4	150.3
	HDR-7	115.2	235.3	225.2	276.7	78.2	175.4	185.8	136.0	140.5	128.0
	HDR-8	107.9	180.1	217.8	256.4	66.3	143.4	201.4	120.6	157.3	120.1
	HDR-9	108.4	235.0	288.9	265.5	96.8	192.5	208.2	149.9	167.9	150.1
	HDR-10	111.3	198.0	252.3	293.5	96.9	156.7	240.8	211.4	158.8	141.4
	HDR-11	124.7	240.7	259.5	223.5	93.3	169.6	195.3	129.6	156.1	113.4
	LCS2	71.5	85.0	113.0	112.7	93.3	97.1	118.9	98.7	122.3	93.3
Norethisterone	LCS1	95.5	103.4	93.0	106.5	92.3	104.4	96.2	107.9	108.6	97.2
	HDR-1	75.2	95.1	77.1	101.2	83.5	74.8	102.9	103.9	103.7	105.4
	HDR-2	94.2	97.4	95.5	114.0	93.5	83.8	92.8	111.0	92.9	106.5
	HDR-3	88.2	89.9	79.8	124.7	86.1	67.2	94.6	106.4	89.7	95.2
	HDR-4	84.5	103.0	89.9	110.6	78.1	72.9	102.9	115.7	79.3	91.7
	HDR-5	82.5	93.9	85.2	122.8	110.9	77.4	99.7	116.9	105.6	101.6
	HDR-6	99.1	92.3	89.0	100.1	103.4	89.3	105.9	104.5	105.2	100.2
	HDR-7	91.1	99.0	83.9	108.8	111.5	77.2	95.4	110.2	100.4	113.0
	HDR-8	85.8	84.3	80.2	107.6	101.8	68.0	85.0	102.2	91.7	100.1
	HDR-9	100.7	92.1	93.0	111.4	130.6	80.2	97.1	117.2	87.2	106.8
	HDR-10	102.4	92.3	76.1	113.9	113.9	73.8	100.6	282.6	89.5	121.1
	HDR-11	96.0	90.8	81.1	49.9	115.0	76.0	110.9	111.4	96.6	102.4
	LCS2	106.2	110.1	102.8	117.7	138.7	124.1	124.8	126.7	109.2	116.8
Oxolinic Acid	LCS1	100.4	101.9	95.5	112.7	100.1	92.2	98.8	90.0	105.4	95.1
	HDR-1	84.1	111.4	83.6	87.8	104.0	92.5	124.8	117.3	134.5	132.6
	HDR-2	83.2	109.1	112.9	97.3	108.2	89.6	114.2	126.6	123.7	143.6
	HDR-3	101.0	109.5	102.3	101.7	105.9	91.9	119.3	141.8	121.4	140.9
	HDR-4	86.5	121.8	100.2	100.5	107.9	96.2	117.5	134.1	123.5	125.3
	HDR-5	85.1	109.9	116.8	93.6	109.7	99.8	108.4	136.8	144.0	127.1
	HDR-6	85.3	119.2	114.5	105.8	120.2	107.0	134.2	132.0	135.6	136.2
	HDR-7	80.7	109.0	112.7	116.7	113.0	100.1	119.8	120.6	120.0	147.8
	HDR-8	82.7	111.4	88.5	112.1	114.6	88.8	123.8	122.3	115.1	132.6
	HDR-9	98.3	118.4	103.4	118.1	141.6	103.2	119.5	127.8	120.0	135.9
	HDR-10	97.5	107.4	109.9	118.3	129.6	93.0	119.7	149.6	125.8	144.8
	HDR-11	89.4	117.6	114.7	102.3	136.6	104.4	125.2	130.6	119.1	134.6
	LCS2	128.4	116.5	123.7	121.6	120.3	101.2	121.2	95.6	115.9	122.7
Paraxanthine	LCS1	101.6	93.7	93.2	104.9	101.8	94.7	100.1	103.9	94.1	86.1

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-1	50.4	41.5	47.2	45.6	64.8	43.4	70.8	64.5	84.8	85.0
	HDR-2	60.1	42.5	51.7	37.3	53.2	55.9	80.7	71.8	101.4	78.2
	HDR-3	61.1	44.9	43.6	61.8	59.1	48.0	71.8	63.5	75.1	83.6
	HDR-4	60.2	45.6	35.1	44.9	58.9	53.2	74.2	66.5	77.4	75.7
	HDR-5	66.5	42.7	43.2	35.1	53.3	65.2	77.5	79.2	83.7	71.1
	HDR-6	54.5	46.8	44.0	38.7	56.5	63.9	94.2	78.8	78.3	72.4
	HDR-7	59.2	52.5	43.7	40.3	52.4	65.2	84.4	79.6	78.7	100.8
	HDR-8	46.4	53.9	44.1	43.3	55.2	58.0	63.9	60.8	68.3	74.1
	HDR-9	57.0	50.0	50.5	46.1	60.1	68.5	71.8	66.5	73.4	85.2
	HDR-10	56.9	44.1	39.7	44.4	49.3	44.2	77.6	138.8	84.3	58.1
	HDR-11	45.0	50.5	41.9	34.6	63.7	65.6	78.3	82.7	81.9	59.2
	LCS2	84.7	86.6	88.2	86.3	92.7	111.2	108.9	91.0	86.7	86.7
Pentoxifylline	LCS1	90.6	104.1	97.8	110.4	97.4	94.7	106.8	92.6	107.5	102.4
	HDR-1	49.9	63.2	60.8	65.0	69.9	40.5	87.5	46.1	70.6	72.9
	HDR-2	68.3	93.2	64.1	61.9	59.3	50.8	93.7	56.5	88.0	66.6
	HDR-3	63.6	73.5	66.9	56.9	69.1	48.1	98.7	72.2	67.0	68.7
	HDR-4	56.2	89.9	69.6	77.4	58.7	54.3	86.7	49.9	79.9	68.4
	HDR-5	57.1	79.5	64.1	72.1	69.2	61.3	90.6	62.3	82.6	69.0
	HDR-6	63.2	85.5	62.9	65.0	81.9	62.0	97.0	61.0	83.5	69.0
	HDR-7	60.6	93.1	85.7	82.3	87.3	61.2	94.4	60.4	75.9	99.3
	HDR-8	58.9	72.3	64.2	68.2	70.4	52.8	95.2	52.4	63.0	82.1
	HDR-9	57.3	74.2	79.5	76.8	79.6	58.2	89.1	72.0	84.4	79.5
	HDR-10	71.5	76.0	83.9	89.3	94.0	62.9	84.4	97.1	64.3	70.3
	HDR-11	66.6	85.0	81.3	57.7	82.5	65.1	99.4	66.2	80.0	71.0
	LCS2	122.8	115.9	108.3	122.6	101.6	103.9	132.2	96.5	124.7	123.9
Phenazone	LCS1	102.6	100.2	95.0	105.6	95.4	93.7	98.1	94.3	94.7	98.7
	HDR-1	104.7	119.6	99.5	97.1	108.2	79.6	127.9	74.8	101.5	90.3
	HDR-2	105.0	122.4	114.7	121.6	103.3	84.2	118.7	87.1	85.7	100.4
	HDR-3	109.3	105.4	102.9	114.7	116.8	85.0	111.9	98.2	82.0	89.5
	HDR-4	112.6	121.7	109.9	95.6	107.2	89.4	121.6	98.6	89.7	87.1
	HDR-5	119.9	118.1	118.3	125.5	110.8	99.6	123.1	81.1	88.4	104.2
	HDR-6	121.7	107.8	123.5	110.6	123.3	95.6	112.7	92.0	90.9	108.9
	HDR-7	109.4	130.6	119.9	124.7	111.8	83.0	113.7	92.5	85.3	98.0
	HDR-8	97.1	117.4	109.9	104.6	103.9	82.8	105.7	82.0	84.7	111.3
	HDR-9	117.2	112.9	126.3	104.0	116.3	88.1	107.3	97.2	89.2	112.3
	HDR-10	107.3	104.9	103.0	101.3	133.0	76.9	130.9	129.4	89.8	123.8
	HDR-11	114.9	108.5	121.5	101.2	134.6	91.6	124.2	80.2	79.8	103.7
	LCS2	135.1	128.2	118.1	120.2	117.8	104.9	123.5	94.0	101.8	122.9
Primidone	LCS1	99.8	97.9	89.2	122.3	100.0	108.3	124.3	103.2	89.7	111.4
	HDR-1	29.9	54.3	42.7	57.5	47.8	27.8	50.7	57.6	33.4	48.3
	HDR-2	39.6	58.2	54.7	61.6	31.2	37.0	47.9	62.5	34.0	65.1
	HDR-3	32.1	44.9	53.5	55.4	36.8	25.3	37.2	68.3	28.8	51.8
	HDR-4	42.7	60.1	45.0	67.4	26.8	37.3	44.8	61.9	30.5	59.7
	HDR-5	45.2	52.9	46.8	59.7	40.6	32.8	41.8	73.8	33.1	48.0
	HDR-6	41.1	56.1	49.4	57.0	50.4	34.6	52.5	64.0	25.4	56.0
	HDR-7	52.1	56.1	46.6	72.2	36.0	26.7	23.5	60.1	26.4	40.5
	HDR-8	31.1	43.7	44.7	65.1	52.2	19.1	44.6	51.7	22.9	45.9
	HDR-9	65.5	43.4	42.5	51.9	56.1	32.8	46.3	58.9	23.6	55.9

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-10	49.2	63.7	45.6	60.6	46.0	20.8	48.7	88.9	26.3	64.5
	HDR-11	43.3	63.4	44.5	40.7	47.1	32.4	44.9	83.5	28.8	52.3
	LCS2	91.3	109.1	86.2	103.8	129.7	96.7	126.0	117.2	86.9	108.2
Progesterone	LCS1	116.2	91.7	99.3	111.2	107.7	103.6	127.6	109.7	99.2	107.7
	HDR-1	98.9	95.7	80.1	113.7	87.8	67.7	110.2	99.2	102.1	95.2
	HDR-2	92.0	100.2	108.5	115.1	78.7	79.1	114.5	91.0	96.2	99.7
	HDR-3	90.6	98.3	84.2	129.9	92.6	62.5	103.9	112.4	87.4	85.9
	HDR-4	97.4	79.6	78.2	107.4	85.3	68.1	90.4	102.8	104.9	78.0
	HDR-5	81.9	87.2	78.0	123.9	83.5	76.6	111.0	132.5	101.2	89.9
	HDR-6	85.8	97.8	90.0	110.0	86.8	71.5	132.8	117.3	103.4	117.0
	HDR-7	116.7	103.6	90.5	117.9	82.7	82.8	111.6	94.7	106.2	91.1
	HDR-8	94.6	87.1	88.6	112.0	76.6	79.7	123.2	97.6	85.0	86.2
	HDR-9	99.2	86.5	92.1	111.5	85.2	78.2	131.5	103.4	108.1	96.3
	HDR-10	93.6	80.3	92.2	109.0	86.4	67.7	109.2	94.4	106.1	90.5
	HDR-11	102.3	95.6	80.5	84.7	101.1	81.6	113.8	92.9	106.7	100.3
	LCS2	100.4	103.9	101.9	117.6	108.4	85.2	139.7	105.6	106.9	99.3
Propazine	LCS1	96.4	101.3	102.9	108.0	102.3	94.9	100.6	99.4	102.7	92.2
	HDR-1	85.5	93.8	71.8	84.0	68.5	68.5	79.6	80.6	110.0	84.2
	HDR-2	94.5	100.4	86.1	81.7	85.8	77.8	86.7	84.8	117.1	94.4
	HDR-3	99.2	84.0	80.9	100.2	88.0	71.3	82.7	103.1	116.1	101.2
	HDR-4	94.7	95.9	82.2	90.1	84.4	81.1	89.1	104.2	121.7	92.6
	HDR-5	94.4	89.1	91.5	90.8	92.3	91.7	88.3	93.7	131.9	102.8
	HDR-6	101.9	90.5	93.3	90.2	101.5	86.1	95.8	96.1	122.4	108.0
	HDR-7	96.4	90.5	95.4	95.0	104.5	81.5	98.4	93.5	112.0	99.1
	HDR-8	90.9	89.3	85.8	89.3	96.1	74.0	95.0	90.7	118.0	102.9
	HDR-9	95.6	90.8	86.9	90.8	107.6	82.4	93.1	90.8	113.4	101.1
	HDR-10	98.6	90.4	86.7	100.3	111.5	72.5	103.0	59.5	122.5	109.7
	HDR-11	103.2	93.0	93.6	54.2	117.4	83.5	93.2	84.9	113.5	100.7
	LCS2	113.6	115.6	113.8	116.3	131.9	95.1	121.1	97.0	106.0	111.2
Propylparaben	LCS1	100.0	95.8	97.0	103.5	90.9	99.0	91.2	98.9	126.9	97.7
	HDR-1	95.1	97.1	93.5	106.4	102.2	104.8	122.2	104.7	164.0	128.8
	HDR-2	98.3	94.0	94.8	104.9	87.3	101.4	123.1	108.8	114.5	124.9
	HDR-3	95.1	101.3	94.2	98.4	91.4	102.7	119.4	107.1	150.5	127.1
	HDR-4	94.9	97.3	96.1	103.2	93.4	98.5	115.6	104.7	129.2	123.9
	HDR-5	98.3	102.5	100.5	103.9	91.3	107.1	127.3	115.9	153.3	134.0
	HDR-6	96.0	98.3	96.4	104.7	105.0	106.2	120.2	112.5	159.6	129.5
	HDR-7	94.9	94.1	99.1	97.9	101.9	106.2	116.5	114.2	152.7	129.6
	HDR-8	101.7	89.6	91.7	105.2	101.4	98.9	120.9	106.3	162.5	127.0
	HDR-9	98.4	96.1	93.2	105.0	104.3	106.4	121.9	111.5	164.0	145.8
	HDR-10	100.7	96.8	95.7	103.4	102.3	104.6	119.7	130.4	152.8	139.1
	HDR-11	98.2	95.6	87.1	82.4	96.6	103.3	113.6	122.4	169.0	119.9
	LCS2	98.2	95.9	86.9	106.4	102.4	95.1	106.1	117.3	131.4	103.6
Quinoline	LCS1	100.2	100.8	105.7	114.8	103.5	93.5	94.3	103.1	101.1	100.2
	HDR-1	89.3	88.1	79.6	95.1	80.9	77.3	84.1	87.0	117.9	92.0
	HDR-2	99.8	80.2	83.6	84.9	79.6	62.0	89.8	95.5	105.1	82.9
	HDR-3	98.3	90.7	82.5	89.6	74.7	73.1	89.6	91.3	97.0	83.8
	HDR-4	90.4	77.4	66.9	81.2	76.1	69.7	83.5	86.2	106.5	78.8
	HDR-5	83.9	83.7	74.7	78.5	74.7	75.7	95.7	102.4	113.4	81.4

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-6	87.8	79.9	86.4	89.1	77.2	81.5	90.7	99.9	111.4	83.3
	HDR-7	92.1	84.9	88.7	90.0	83.0	78.5	84.7	94.5	103.8	87.7
	HDR-8	109.3	89.9	78.7	72.6	86.8	65.7	84.8	89.0	114.3	82.6
	HDR-9	89.7	73.0	85.6	91.5	81.3	62.9	83.1	98.5	104.7	77.4
	HDR-10	98.9	83.1	75.6	98.6	81.6	61.3	87.5	110.7	110.6	85.5
	HDR-11	108.5	84.2	76.5	81.5	77.3	70.1	91.7	90.2	113.6	90.7
	LCS2	104.7	95.4	102.5	95.9	99.3	98.9	96.5	100.6	95.8	97.0
Simazine	LCS1	93.4	99.5	99.8	104.8	98.7	99.8	97.7	97.8	101.4	95.9
	HDR-1	103.7	118.7	104.2	103.8	106.3	101.9	112.5	94.7	107.4	117.9
	HDR-2	108.5	124.9	106.1	106.1	100.8	106.4	114.2	100.1	105.1	118.6
	HDR-3	111.0	106.3	103.5	103.1	102.1	91.2	111.6	103.3	108.4	121.3
	HDR-4	106.9	120.1	108.8	105.2	87.3	90.8	107.6	102.6	103.2	113.8
	HDR-5	110.3	117.2	107.2	110.3	94.0	95.8	115.0	102.5	110.7	105.1
	HDR-6	100.1	114.7	105.8	103.1	104.8	93.4	109.7	95.1	106.6	112.3
	HDR-7	108.6	114.1	105.6	106.5	104.8	99.2	111.6	93.7	93.4	121.6
	HDR-8	107.9	111.2	110.6	99.0	87.4	95.3	102.5	97.1	108.4	111.6
	HDR-9	116.0	104.8	103.4	95.4	97.2	99.5	113.0	103.8	123.2	109.7
	HDR-10	102.4	121.9	103.4	109.4	96.9	98.4	104.4	104.2	109.8	119.3
	HDR-11	112.2	119.8	114.1	77.6	102.0	93.4	120.0	93.2	106.3	115.4
	LCS2	89.6	100.8	99.1	96.6	93.7	100.7	100.3	95.1	96.3	92.1
Sucralose - M-H	LCS1	95.1	102.3	105.7	103.9	96.4	98.1	97.2	108.1	102.1	104.0
	HDR-1	202.2	231.9	139.8	128.2	156.9	114.4	248.9	145.8	152.7	346.0
	HDR-2	194.7	196.7	163.7	179.4	176.7	203.6	253.6	298.1	181.6	248.1
	HDR-3	251.0	139.4	149.0	186.3	204.5	187.9	255.0	189.1	253.4	241.0
	HDR-4	185.1	147.3	136.7	170.5	147.5	172.6	262.4	132.2	146.2	204.6
	HDR-5	207.8	164.1	146.7	148.9	154.9	158.0	282.0	189.3	248.3	251.2
	HDR-6	203.3	141.2	148.3	142.2	201.1	154.0	250.0	132.4	187.2	195.7
	HDR-7	238.0	190.4	180.9	140.9	123.9	137.1	275.4	172.5	179.9	220.1
	HDR-8	214.7	147.5	126.1	138.3	162.7	124.9	234.9	150.5	111.5	228.6
	HDR-9	247.8	157.8	105.4	123.9	142.6	155.3	259.1	151.8	220.1	221.0
	HDR-10	199.6	146.2	136.6	148.2	153.7	102.8	261.7	169.8	132.8	215.3
	HDR-11	163.2	126.2	147.0	101.1	186.9	149.3	250.5	107.9	167.8	182.3
	LCS2	102.4	101.0	104.5	100.0	100.9	105.7	107.8	101.7	95.0	105.2
Sulfachloropyridazine	LCS1	92.1	95.4	95.3	111.3	103.6	92.9	101.3	95.8	103.7	115.2
	HDR-1	24.0	24.8	24.4	14.3	42.3	8.8	29.2	12.9	51.7	27.6
	HDR-2	21.5	25.7	23.1	27.2	37.0	18.7	19.4	10.6	48.0	31.7
	HDR-3	45.9	10.2	17.0	18.8	47.2	15.1	27.1	28.9	44.8	30.2
	HDR-4	21.3	23.0	28.4	19.6	41.2	25.9	35.1	23.6	56.7	27.0
	HDR-5	18.3	21.1	23.2	17.3	48.3	24.9	30.5	19.7	60.6	35.4
	HDR-6	13.4	32.9	37.8	23.6	65.7	32.3	28.7	15.1	46.0	21.9
	HDR-7	23.6	54.6	32.0	21.0	25.2	21.0	37.6	27.3	41.4	32.9
	HDR-8	36.9	19.5	31.5	16.3	43.8	35.2	43.7	29.7	43.3	32.2
	HDR-9	26.4	33.7	35.3	24.2	46.3	34.4	41.1	29.2	48.0	29.6
	HDR-10	22.0	31.0	29.7	16.1	55.2	13.9	42.7	24.3	60.9	23.5
	HDR-11	23.8	30.7	51.0	16.5	46.0	30.1	36.2	19.7	40.5	17.4
	LCS2	90.2	88.6	87.7	98.9	86.5	92.7	100.5	91.7	106.1	134.4

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
Sulfadiazine	LCS1	96.7	104.2	105.5	108.8	107.6	105.3	107.4	96.3	111.6	99.8
	HDR-1	91.1	81.8	102.0	67.4	49.7	104.1	88.8	112.4	117.8	81.2
	HDR-2	57.0	63.1	52.3	73.1	45.4	76.6	104.7	97.2	110.3	141.5
	HDR-3	97.4	178.4	91.9	72.5	74.2	111.5	145.8	133.7	143.1	101.3
	HDR-4	100.6	196.6	91.8	58.5	39.1	96.0	140.0	90.7	144.5	84.9
	HDR-5	101.2	188.1	109.6	139.8	89.2	68.0	170.1	130.6	149.3	95.6
	HDR-6	116.2	81.2	46.9	59.6	77.9	86.9	101.1	105.9	93.8	79.4
	HDR-7	126.0	141.3	91.2	73.8	5.5	65.9	227.7	99.7	124.0	78.3
	HDR-8	73.6	68.0	136.3	77.7	32.2	62.4	42.5	109.9	120.1	79.6
	HDR-9	120.0	70.5	82.5	45.9	69.9	60.4	108.7	118.7	140.6	65.3
	HDR-10	88.6	54.4	178.6	99.3	95.4	40.4	111.6	94.5	173.6	91.7
	HDR-11	86.0	82.7	119.3	N/A	78.2	174.3	154.7	98.5	137.0	46.9
	LCS2	92.6	98.0	97.7	98.8	102.5	103.7	115.5	99.9	110.4	97.5
Sulfadimethoxine	LCS1	100.5	96.0	100.9	105.0	95.8	100.6	92.2	96.5	133.8	92.1
	HDR-1	93.7	145.4	104.1	121.9	92.8	90.1	82.7	77.7	131.6	111.3
	HDR-2	102.9	124.2	110.2	124.1	91.1	86.9	94.8	73.5	99.6	112.2
	HDR-3	106.9	125.3	123.7	103.0	91.3	85.9	87.7	78.3	123.7	114.8
	HDR-4	91.6	144.9	138.0	127.7	92.7	85.2	87.5	75.2	97.6	112.5
	HDR-5	119.4	111.6	153.0	116.3	94.9	85.9	94.2	86.0	119.0	92.5
	HDR-6	125.2	136.3	138.9	121.3	100.3	91.2	97.6	70.6	126.9	95.4
	HDR-7	109.8	127.3	128.9	112.9	106.5	85.2	104.8	84.0	107.8	104.2
	HDR-8	116.9	109.7	125.4	109.1	97.8	83.6	88.7	79.0	121.6	109.9
	HDR-9	101.8	112.3	131.2	127.5	129.3	88.9	79.4	75.8	129.3	92.8
	HDR-10	107.6	119.0	110.6	107.9	105.4	85.4	99.5	85.8	128.8	134.2
	HDR-11	121.0	129.4	124.7	60.9	102.5	80.9	83.2	75.2	110.8	103.9
	LCS2	89.3	97.2	92.6	92.9	95.0	103.6	102.2	111.4	131.4	91.4
Sulfamerazine	LCS1	92.5	92.8	94.8	105.8	93.0	89.3	101.5	90.1	110.3	103.9
	HDR-1	138.0	86.1	61.8	107.5	108.0	54.0	41.1	58.8	138.9	55.2
	HDR-2	91.5	130.8	146.9	94.6	84.5	171.4	63.5	53.8	139.4	81.6
	HDR-3	65.8	158.3	107.4	95.5	113.7	96.1	91.3	57.5	84.8	167.9
	HDR-4	91.6	101.8	89.3	137.0	146.7	121.3	88.9	100.5	80.2	224.4
	HDR-5	118.4	101.6	77.6	200.3	92.3	148.6	51.5	118.7	80.6	45.5
	HDR-6	187.0	154.4	104.8	75.0	220.7	211.2	94.6	73.4	64.0	120.2
	HDR-7	99.2	35.0	117.0	179.4	82.1	128.6	119.0	92.2	51.0	107.5
	HDR-8	101.8	148.4	88.7	146.3	131.3	108.7	99.7	98.0	156.9	91.6
	HDR-9	122.5	129.1	102.5	83.5	139.4	66.4	107.2	70.8	136.9	89.1
	HDR-10	144.0	100.3	120.7	107.1	125.2	113.6	269.0	115.8	149.9	52.4
	HDR-11	115.2	98.2	53.1	74.6	81.7	65.2	121.2	155.5	63.3	111.7
	LCS2	108.0	111.7	102.5	114.4	105.1	86.7	115.9	96.3	113.5	126.2
Sulfamethazine	LCS1	102.1	95.2	101.7	111.7	88.5	95.2	98.5	109.6	130.3	113.6
	HDR-1	150.8	131.2	184.7	64.9	58.3	157.3	126.0	41.8	54.6	113.4
	HDR-2	97.1	156.4	91.2	78.4	148.5	103.6	136.1	94.6	17.9	188.0
	HDR-3	62.9	194.1	67.7	67.3	108.9	118.5	85.1	58.7	128.3	41.2
	HDR-4	132.1	90.9	37.6	123.1	143.4	143.5	123.4	107.1	106.0	176.0
	HDR-5	190.6	132.0	201.5	124.4	169.3	174.6	149.2	52.9	82.3	119.2
	HDR-6	100.8	99.8	205.0	62.1	47.7	120.5	129.4	55.9	47.8	125.0
	HDR-7	114.8	173.6	65.1	105.4	228.2	84.0	120.0	99.2	254.1	148.2
	HDR-8	147.0	96.1	174.0	154.7	231.4	154.0	57.6	87.3	85.7	123.1

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-9	117.0	125.8	124.9	103.6	144.1	182.5	139.1	168.2	70.2	135.5
	HDR-10	114.8	100.8	152.8	118.5	126.2	138.4	92.7	110.5	60.4	157.3
	HDR-11	139.4	69.5	103.5	60.6	118.7	70.4	138.9	124.3	74.8	142.8
	LCS2	98.1	90.8	95.0	105.2	98.6	94.7	107.9	106.3	126.6	111.6
Sulfamethizole	LCS1	98.5	92.3	99.5	108.4	82.7	91.6	92.0	94.1	94.2	106.5
	HDR-1	202.2	140.0	178.4	200.4	290.4	215.2	230.6	152.0	183.4	77.7
	HDR-2	266.4	254.9	242.2	174.9	215.1	304.5	238.6	123.8	108.8	193.0
	HDR-3	254.7	188.5	206.6	92.5	307.7	369.9	328.3	155.0	51.1	123.2
	HDR-4	268.7	174.4	184.4	160.7	267.9	273.0	303.3	278.1	276.3	93.0
	HDR-5	174.3	225.2	190.9	158.4	262.5	330.2	259.0	251.1	243.2	285.5
	HDR-6	306.7	202.2	274.9	183.1	324.4	335.5	326.6	264.4	267.5	281.9
	HDR-7	218.0	280.2	148.4	184.5	286.2	242.9	257.9	230.7	253.2	81.7
	HDR-8	209.1	171.9	187.9	224.6	268.5	252.9	185.8	332.3	104.7	169.5
	HDR-9	180.9	277.3	217.1	147.0	360.3	315.4	303.5	279.7	229.8	172.4
	HDR-10	219.3	199.6	240.2	174.9	264.9	275.4	217.2	142.3	205.4	333.5
	HDR-11	239.7	166.4	285.7	141.0	314.8	317.1	251.1	214.9	127.2	203.7
	LCS2	93.4	94.1	98.4	103.7	89.8	88.8	89.3	93.9	94.6	103.0
Sulfamethoxazole	LCS1	99.7	101.4	101.2	106.4	101.9	99.8	100.1	102.6	101.5	102.2
	HDR-1	97.9	97.1	69.9	105.7	92.3	66.5	102.8	85.8	90.3	90.0
	HDR-2	83.6	98.8	101.6	85.9	78.6	64.1	63.9	80.2	93.9	83.1
	HDR-3	86.1	91.4	84.6	106.7	81.6	59.5	87.0	74.9	88.1	90.4
	HDR-4	95.7	79.0	76.8	85.9	98.0	55.8	67.8	93.6	80.6	78.5
	HDR-5	80.7	76.5	98.3	92.6	117.3	64.9	67.2	81.1	90.4	83.7
	HDR-6	81.4	94.9	90.5	88.6	66.6	58.4	97.2	93.0	101.5	98.6
	HDR-7	112.5	112.3	94.3	97.8	82.2	79.7	82.4	81.7	93.7	113.3
	HDR-8	69.9	80.7	96.8	77.5	83.6	66.4	85.0	66.4	95.1	89.3
	HDR-9	91.9	76.2	89.3	93.2	78.3	66.1	86.5	98.6	91.6	86.6
	HDR-10	91.0	79.3	95.5	76.2	78.9	65.8	91.8	78.4	79.8	69.2
	HDR-11	86.1	107.3	80.4	60.2	102.6	68.6	77.3	93.1	87.5	98.2
	LCS2	100.5	98.9	104.1	102.2	98.1	98.0	98.9	96.5	96.6	100.2
Sulfathiazole	LCS1	95.8	93.9	93.7	101.6	89.5	91.5	99.2	95.1	131.8	100.5
	HDR-1	80.1	63.0	55.9	86.4	67.3	60.7	62.9	94.4	114.4	70.1
	HDR-2	82.2	60.7	56.9	69.8	75.6	68.5	81.7	100.6	97.6	104.6
	HDR-3	63.5	77.2	49.0	64.4	77.9	49.8	48.6	80.5	114.4	91.2
	HDR-4	60.6	82.3	56.9	66.3	75.1	36.4	32.2	99.2	71.7	95.2
	HDR-5	80.3	69.5	51.4	77.3	62.2	50.4	45.3	72.6	97.9	88.1
	HDR-6	58.6	71.8	67.2	87.1	79.7	37.1	60.6	88.9	101.0	87.1
	HDR-7	74.2	63.2	63.9	72.5	62.4	62.6	70.6	73.1	103.8	68.3
	HDR-8	65.0	62.6	64.7	69.9	80.9	61.9	46.0	87.2	109.8	60.2
	HDR-9	74.5	73.4	65.5	81.9	54.4	65.2	42.2	100.8	118.7	67.2
	HDR-10	58.1	59.9	74.1	71.1	54.1	55.4	78.5	57.5	104.2	62.9
	HDR-11	75.1	62.0	58.5	31.2	56.5	46.0	67.9	88.8	123.5	93.1
	LCS2	85.7	82.1	80.4	100.8	102.3	84.6	94.8	114.3	111.3	95.8
Sulfometuron methyl	LCS1	103.1	96.6	95.4	108.3	95.9	92.2	103.1	84.7	104.8	98.0
	HDR-1	55.6	51.8	44.2	45.6	53.9	47.7	63.3	59.2	84.8	90.2
	HDR-2	53.9	44.6	50.1	44.3	55.7	45.9	58.5	55.4	88.6	91.9
	HDR-3	58.8	42.4	51.0	41.7	57.9	41.8	51.7	62.0	82.0	82.8
	HDR-4	50.6	46.5	45.4	41.0	51.5	49.7	54.3	69.9	95.0	86.6

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-5	46.8	47.1	47.1	40.7	52.7	43.6	55.3	57.0	83.2	84.0
	HDR-6	52.8	51.4	55.9	41.8	58.5	50.6	56.1	57.3	82.8	81.6
	HDR-7	56.5	48.2	54.1	43.0	48.5	44.5	50.7	51.2	83.5	84.9
	HDR-8	54.3	44.2	46.6	43.5	48.7	43.6	60.4	49.8	74.3	86.5
	HDR-9	54.9	47.6	52.8	38.9	58.4	46.6	54.3	52.8	81.0	84.2
	HDR-10	58.6	42.8	52.8	48.8	57.1	43.9	60.2	87.3	77.3	84.6
	HDR-11	54.0	49.0	51.1	42.8	59.3	49.0	58.3	59.8	70.1	81.3
	LCS2	93.7	87.5	94.8	83.0	85.7	105.8	92.2	69.5	84.9	85.9
TCEP	LCS1	111.9	102.5	99.9	107.3	92.9	96.5	108.7	97.4	101.4	98.6
	HDR-1	57.2	72.0	70.6	72.1	47.9	49.6	70.1	74.1	86.1	100.2
	HDR-2	62.8	72.3	67.9	69.4	55.2	60.4	72.7	85.4	96.1	95.0
	HDR-3	57.0	68.9	68.8	60.6	50.0	37.6	68.4	80.2	66.4	110.3
	HDR-4	64.1	71.3	59.3	72.2	56.8	46.0	70.9	80.6	79.5	102.9
	HDR-5	77.0	72.5	72.7	73.3	59.6	48.2	76.7	84.2	100.4	93.4
	HDR-6	69.5	71.4	78.9	74.6	44.2	58.5	91.6	72.7	97.3	119.9
	HDR-7	65.7	78.7	67.1	67.2	49.7	47.2	63.6	83.5	87.3	104.9
	HDR-8	63.6	82.4	71.5	66.3	35.2	55.1	58.2	80.8	85.1	97.9
	HDR-9	58.1	65.0	62.7	62.5	41.4	39.1	67.2	90.2	94.3	95.4
	HDR-10	61.4	74.6	66.8	66.4	47.2	48.7	84.5	80.1	86.8	102.4
	HDR-11	83.5	63.5	69.9	58.0	41.1	49.4	1.4	81.9	82.3	117.7
	LCS2	103.7	95.8	89.6	107.7	75.0	100.7	94.0	88.2	101.4	85.2
TCPP	LCS1	108.8	99.3	103.7	117.0	124.0	117.0	119.3	84.6	165.3	82.2
	HDR-1	73.5	93.4	81.7	104.2	120.1	78.1	138.3	98.7	196.2	102.5
	HDR-2	90.2	94.7	96.3	103.1	153.8	97.0	121.9	104.4	137.9	119.0
	HDR-3	92.7	87.3	98.5	111.9	147.5	110.7	134.0	145.1	186.0	97.4
	HDR-4	80.1	93.2	106.3	114.6	168.9	95.3	144.6	88.0	168.7	106.6
	HDR-5	84.5	110.0	95.8	115.2	170.4	97.8	143.2	120.7	174.5	97.8
	HDR-6	93.5	100.6	86.8	100.5	125.8	112.8	152.4	137.2	215.5	109.1
	HDR-7	92.2	92.7	98.6	117.7	119.7	122.2	146.6	121.0	194.3	92.8
	HDR-8	99.5	95.6	93.0	118.0	100.6	87.4	134.7	108.9	249.7	92.8
	HDR-9	87.7	103.9	100.7	105.9	123.1	112.0	132.1	147.5	224.1	99.0
	HDR-10	86.9	102.2	86.9	109.2	135.8	102.6	170.1	824.4	206.9	105.8
	HDR-11	91.0	83.6	102.2	68.5	121.4	86.7	161.7	149.1	266.7	97.4
	LCS2	119.8	98.0	84.2	111.3	77.2	120.0	117.3	85.7	203.8	69.8
TDCPP - PRM	LCS1	124.3	99.8	101.7	111.7	113.6	101.5	137.6	101.1	138.4	80.5
	HDR-1	65.5	56.9	58.4	68.0	49.4	47.8	53.3	65.9	73.2	59.9
	HDR-2	77.8	73.1	75.9	51.8	47.5	41.3	46.1	70.7	60.7	52.3
	HDR-3	70.3	55.6	60.4	49.8	51.4	44.0	47.6	73.1	76.9	47.3
	HDR-4	63.2	52.3	61.6	50.8	54.4	38.7	44.7	57.2	55.2	35.9
	HDR-5	80.3	58.0	61.2	49.4	55.1	51.0	42.1	73.2	61.6	46.8
	HDR-6	86.5	54.2	67.5	53.7	54.4	49.6	41.6	74.7	67.3	48.9
	HDR-7	71.9	52.4	54.3	52.1	48.0	38.0	45.2	57.3	75.4	51.4
	HDR-8	75.0	54.5	70.1	48.1	47.4	41.0	36.0	68.7	72.8	38.1
	HDR-9	99.4	50.8	67.5	46.5	53.8	41.0	41.2	70.0	74.1	49.1
	HDR-10	91.3	48.0	73.2	51.2	71.5	51.0	40.8	95.3	78.8	49.0
	HDR-11	76.0	53.1	64.2	108.1	54.3	36.3	45.3	68.3	75.3	41.0
	LCS2	101.2	77.2	74.3	78.4	131.3	81.6	76.8	110.3	83.1	44.3
Testosterone	LCS1	101.1	106.3	104.5	118.1	94.8	99.0	98.2	101.4	92.2	82.7

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-1	101.3	114.2	92.2	106.1	84.3	92.8	89.2	98.0	95.5	79.5
	HDR-2	106.2	108.4	113.7	105.2	83.1	85.3	93.5	115.4	97.7	83.5
	HDR-3	112.6	113.5	110.0	118.0	76.8	78.2	92.0	108.3	100.6	80.1
	HDR-4	98.5	95.2	94.5	101.1	74.8	86.9	88.4	111.3	93.0	78.2
	HDR-5	91.2	99.5	100.7	101.8	86.4	80.4	85.4	146.2	108.4	83.8
	HDR-6	101.2	104.2	115.9	107.1	88.3	84.3	92.0	102.2	95.7	85.7
	HDR-7	115.9	120.5	103.5	111.8	83.1	73.1	82.4	98.7	98.1	83.1
	HDR-8	101.5	111.5	104.0	115.4	68.2	76.0	80.4	95.1	89.1	74.1
	HDR-9	93.4	102.6	101.3	99.1	84.2	80.8	81.2	109.3	104.8	81.3
	HDR-10	99.6	97.5	104.5	109.0	83.2	82.4	87.4	143.0	108.0	83.3
	HDR-11	111.8	93.8	95.2	97.1	79.7	83.3	97.8	96.2	103.4	82.4
	LCS2	100.4	103.6	110.8	112.8	82.4	96.9	95.4	93.4	98.7	85.5
Theobromine	LCS1	66.2	102.6	106.5	111.4	114.8	82.8	101.3	99.1	101.0	111.2
	HDR-1	77.6	94.7	37.5	62.6	74.9	88.5	86.3	24.9	104.0	131.2
	HDR-2	57.3	67.0	44.0	90.9	90.7	86.1	51.1	134.8	132.6	119.7
	HDR-3	74.5	59.0	68.7	125.5	66.1	61.9	40.6	72.7	105.0	132.3
	HDR-4	57.3	83.6	82.3	72.2	99.4	94.4	53.8	94.8	112.2	140.4
	HDR-5	58.7	57.7	94.7	80.0	90.5	85.7	109.0	46.0	114.2	120.9
	HDR-6	38.3	64.8	98.3	86.2	88.8	61.9	61.4	74.6	116.7	91.1
	HDR-7	52.8	73.4	70.7	75.1	72.4	76.3	159.2	87.3	109.6	115.7
	HDR-8	60.9	88.0	67.3	89.9	66.9	99.0	98.2	89.4	106.4	119.1
	HDR-9	59.1	73.1	64.0	66.3	75.4	78.6	77.2	84.5	105.5	113.9
	HDR-10	66.6	70.6	70.2	73.7	83.9	70.6	86.9	598.8	116.0	127.3
	HDR-11	58.6	48.4	76.6	60.3	62.4	93.1	54.6	77.0	100.0	114.3
	LCS2	67.1	92.7	108.1	107.3	98.9	113.1	81.8	93.0	96.6	90.8
Theophyline	LCS1	77.7	91.3	101.8	106.1	114.3	105.6	83.2	99.0	94.4	110.2
	HDR-1	54.2	51.8	69.1	33.5	72.2	162.3	378.4	357.5	132.4	182.2
	HDR-2	50.6	79.2	73.0	55.9	79.8	245.5	268.3	360.4	136.3	166.1
	HDR-3	36.9	58.1	58.4	25.9	106.6	177.3	323.9	226.0	159.5	175.8
	HDR-4	47.0	47.9	74.4	30.1	75.0	167.4	181.7	255.6	130.7	174.4
	HDR-5	22.8	47.7	78.1	39.3	113.0	218.0	197.1	288.8	135.4	161.1
	HDR-6	28.7	51.1	53.2	40.8	84.2	198.1	271.0	140.4	129.9	128.9
	HDR-7	43.7	56.4	83.1	45.6	63.8	197.4	307.3	193.7	140.8	167.1
	HDR-8	44.7	36.4	58.2	59.6	79.2	210.6	161.8	149.0	108.8	178.7
	HDR-9	34.0	54.1	54.4	33.3	91.0	176.5	190.2	229.2	117.4	165.8
	HDR-10	54.6	33.0	80.9	27.4	105.8	104.9	140.8	486.9	122.8	148.4
	HDR-11	32.9	31.7	87.7	31.5	53.7	180.8	177.4	205.2	147.4	174.1
	LCS2	70.1	96.2	90.0	88.1	108.3	92.5	67.7	93.7	90.3	100.7
Thiabendazole	LCS1	100.7	97.5	96.3	108.5	90.0	95.4	100.0	89.5	97.5	104.3
	HDR-1	84.3	98.5	95.1	90.9	108.9	37.8	103.7	73.5	101.4	99.9
	HDR-2	93.7	101.8	99.9	97.9	97.9	33.3	102.7	79.3	99.4	101.4
	HDR-3	87.9	91.3	97.9	96.3	91.9	30.9	106.8	77.9	105.3	93.3
	HDR-4	84.6	75.7	86.1	104.7	102.8	32.9	99.3	82.6	106.8	83.7
	HDR-5	84.1	89.7	102.0	93.5	99.1	37.4	99.3	101.9	109.9	87.8
	HDR-6	76.8	91.4	99.3	101.4	98.6	33.3	98.1	84.8	99.7	98.6
	HDR-7	92.6	101.3	102.4	112.6	89.8	34.2	104.5	80.3	105.2	101.6
	HDR-8	84.9	86.8	100.3	102.9	93.9	36.0	89.5	78.4	96.8	95.6
	HDR-9	82.1	93.5	102.8	94.7	100.7	37.8	95.0	82.6	105.3	92.8

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-10	69.8	86.2	98.5	104.4	101.1	36.8	99.7	84.5	103.4	98.4
	HDR-11	101.1	96.7	90.5	82.8	93.1	35.2	108.6	77.7	96.8	103.6
	LCS2	105.7	102.2	105.0	112.3	109.8	98.4	96.5	95.3	95.4	107.0
Triclocarban	LCS1	128.5	97.0	101.8	105.6	74.9	99.8	103.2	89.2	129.2	98.4
	HDR-1	117.1	101.1	96.4	115.0	73.2	64.8	93.8	59.8	97.0	64.6
	HDR-2	130.0	102.0	96.3	110.6	66.3	52.7	90.8	55.1	70.8	61.7
	HDR-3	117.4	101.9	100.5	112.8	61.4	61.7	74.7	55.5	79.7	63.0
	HDR-4	133.0	109.5	102.0	113.0	68.2	59.4	66.0	48.3	75.5	51.6
	HDR-5	121.5	115.8	100.2	110.3	67.3	63.6	78.5	62.7	81.6	56.3
	HDR-6	145.4	110.8	110.0	117.4	70.8	55.4	87.9	58.5	98.6	53.5
	HDR-7	131.6	110.1	109.8	111.5	66.8	63.1	71.3	59.3	85.6	52.4
	HDR-8	131.4	110.1	97.4	115.5	59.5	59.3	78.1	54.0	83.7	49.7
	HDR-9	132.1	116.7	113.6	114.5	69.9	63.1	86.5	58.4	113.9	53.0
	HDR-10	132.5	106.2	101.7	101.5	72.8	54.2	94.3	68.5	102.9	64.2
	HDR-11	141.0	115.4	108.0	119.6	59.4	54.4	83.0	58.3	95.5	56.0
	LCS2	125.2	102.1	101.2	112.2	92.8	95.4	121.7	99.4	123.3	88.9
Triclosan	LCS1	73.4	77.1	82.8	91.6	80.4	83.3	73.2	85.0	124.5	91.6
	HDR-1	112.1	122.7	106.6	152.5	98.0	104.0	134.4	100.8	150.0	102.6
	HDR-2	111.5	126.6	113.2	154.6	89.0	94.9	136.1	100.3	115.9	105.0
	HDR-3	106.8	120.8	114.1	154.0	83.3	103.4	126.8	100.5	134.0	104.8
	HDR-4	112.4	120.4	114.6	155.2	85.2	95.6	121.5	91.8	117.6	91.6
	HDR-5	109.6	129.0	116.8	151.7	88.3	115.1	131.8	103.6	136.2	100.7
	HDR-6	116.0	117.0	111.2	153.4	96.0	101.9	133.9	104.6	151.2	98.6
	HDR-7	113.7	120.7	113.7	146.6	93.0	115.4	115.5	101.1	137.7	97.6
	HDR-8	112.7	115.8	113.6	157.0	85.4	103.2	128.2	95.1	130.6	92.0
	HDR-9	117.2	118.7	109.3	147.1	94.3	109.6	136.7	97.6	156.5	98.2
	HDR-10	112.7	119.6	107.1	150.3	93.4	108.9	134.0	111.3	152.8	110.6
	HDR-11	119.5	119.6	105.5	142.8	88.7	101.0	136.0	96.4	146.1	102.0
	LCS2	60.8	60.7	60.3	79.0	76.3	62.4	75.8	96.8	110.8	85.6
Trimethoprim	LCS1	96.4	87.5	95.8	108.8	105.2	101.9	104.1	100.7	103.6	96.2
	HDR-1	89.4	83.8	98.8	111.2	87.5	66.3	96.6	94.4	88.8	95.0
	HDR-2	88.0	86.0	95.8	92.6	87.1	67.8	76.5	91.6	96.5	86.8
	HDR-3	91.3	86.0	91.4	90.7	78.5	67.3	91.9	96.6	88.8	94.6
	HDR-4	97.7	88.2	86.7	83.1	77.9	69.9	92.8	88.1	109.1	91.8
	HDR-5	89.8	78.0	102.1	83.7	73.2	76.8	85.6	105.8	94.0	96.4
	HDR-6	100.2	95.1	80.0	82.8	93.1	72.4	86.5	98.1	95.8	91.2
	HDR-7	90.7	83.7	98.6	73.7	97.0	65.4	104.9	98.7	94.4	88.9
	HDR-8	91.1	84.0	73.0	92.9	84.1	62.1	91.7	98.5	92.1	96.0
	HDR-9	82.4	82.2	90.4	88.0	80.3	76.2	80.1	89.4	99.1	94.8
	HDR-10	86.1	90.6	94.9	82.0	85.9	70.3	74.4	85.1	79.1	96.3
	HDR-11	91.8	81.2	92.2	83.8	80.8	69.3	94.5	91.5	96.6	93.3
	LCS2	103.5	91.1	94.8	90.0	102.3	103.6	100.4	94.4	94.7	96.2
Warfarin	LCS1	89.8	93.1	92.4	99.9	67.2	84.8	92.1	96.3	115.5	90.4
	HDR-1	126.2	128.4	141.1	141.1	130.8	128.6	200.5	148.0	236.3	185.6
	HDR-2	118.5	123.6	130.5	144.8	117.9	117.4	189.1	149.8	158.0	171.6
	HDR-3	127.5	121.3	126.8	137.9	116.5	121.7	182.5	148.5	191.4	153.7
	HDR-4	121.7	131.4	121.8	137.3	111.3	107.3	159.5	137.5	167.3	140.8
	HDR-5	124.6	126.3	133.4	135.0	112.1	113.7	170.8	138.4	184.2	144.0

Working Stock Standard ID		WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 06-30-16	WSS 07-15-16	WSS-07-25-16	WSS 08-15-16	WSS 08-29-16	WSS 09-07-16	WSS-09-21-16
Analytical Date		7/1/16	7/3/16	7/5/16	7/8/16	7/17/16	7/31/16	8/15/16	8/30/16	9/7/16	9/21/16
Days Since Spike		0	2	4	7	16	30	45	60	69	84
Compound	**Sample Name**										
	HDR-6	128.6	130.9	121.0	135.6	113.2	122.6	173.7	144.5	204.8	144.4
	HDR-7	123.3	136.6	129.9	135.4	116.6	117.3	163.1	141.9	180.5	151.8
	HDR-8	128.0	119.9	124.0	139.0	111.8	116.8	153.8	139.6	183.5	145.7
	HDR-9	120.1	123.6	124.3	134.7	117.8	122.9	165.0	142.9	208.6	150.6
	HDR-10	124.0	123.2	124.9	126.5	116.3	118.7	155.5	163.3	207.1	170.7
	HDR-11	130.4	127.6	117.2	125.0	109.9	118.3	168.8	146.6	208.8	139.7
	LCS2	80.9	80.1	77.7	92.2	61.4	73.2	99.0	105.3	99.4	89.9

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Appendix D
Laboratory Analytical Reports

(separate files)

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