

August 07, 2023

City of Visalia, Community Development Department
 Paul Bernal, Director
 315 E. Acequia Ave.
 Visalia, CA 93291

Re: Carleton Acres Specific Plan – Biochemical Oxygen Demand and Total Suspended Solids Calculations

Mr. Bernal,

We have prepared the calculations below using the best available standards and practices that were able to find. Our calculations reference a report prepared by Provost and Prichard titled Local Discharge Limits Development, that was prepared for the City of Visalia in March 2011, see Appendix A. We have also utilized the City of Visalia’s Sewer Master Plan, December 2005, to calculate an assumed volume of effluent for the proposed project. See below for the equation that will be utilized to calculate the assumed BOD and TSS that will be generated by the proposed project.

Equation 1 – AHL based on WDR limits

$$AHL_{wdr} = \frac{(8.34)(C_{wdr})(Q_{wwtf})}{(1-R_{wwtf})}$$

Where:

- AHL_{wdr} = AHL based on WDR limit, lb/day
- C_{wdr} = WDR permit limit, mg/L
- Q_{wwtf} = WWTF average flow rate, MGD
- R_{wwtf} = Plant removal efficiency, as decimal
- 8.34 = Conversion factor

Table 3-2 shows the allowable headworks loading for the POCs based upon the limitations contained in the WDR.

Table 3-2: WDR Based AHLs

Pollutant	WWTF Flow (MGD) (Q _{wwtf})	WDR Limit (mg/l) (C _{wdr})	Select Removal Efficiency (from list)	Removal Efficiency (%) (R _{wwtf})	Allowable Headworks (lbs/day)
Lead	12.18	0.05	User Entered	62.19	13.434
Ammonia	12.18	25	User Entered	43.89	4525.7652
BOD	12.18	30	User Entered	98.81	256354.5218
TSS	12.18	30	User Entered	98.65	226555.1037



The Carleton Acres Specific Plan is a new project being proposed by West Star Construction. The project is located on Shirk Street, South of Shannon Parkway. The project is proposing to develop 28.76 Gross Acres of Commercial Parcel, 100.86 Gross Acres of Low Density Residential, 9.1 Gross Acres of Medium Density Residential, and 9.7 Gross Acres of High Density Residential. Using Table 3.4 from the City of Visalia’s Sewer Master Plan, the expected flow rates can be calculated using the Adjusted Flow Coefficients that have been provided.

**Table 3.4 Average Sewer Flow Coefficients
Sewer System Master Plan
City of Visalia**

Land Use Designation	Land Use Code	Urban Development Boundary ^{1,2}	Existing Sewered Service Area ^{3,4}	% of Total Service Area	1994 Flow Coeff ⁵	Calculated Flows	Adjusted Flow Coefficient	2003 ADWF Balance	% of Total ADWF
		(ga)	(ga)	(%)	(gpd/ga)	(gpd)	(gpd/ga)	(gpd)	(%)
Residential									
Rural	RA	1,007	413	2%	500	206,390	400	165,112	1%
Low Density	RLD	14,138	8,423	43%	1,000	8,422,750	800	6,738,200	55%
Medium Density	RMD	879	536	3%	1,800	964,296	1,300	696,436	6%
High Density	RHD	315	165	1%	2,500	413,200	2,000	330,560	3%
Commercial									
Commercial	COM	3,499	2,183	11%	1,000	2,183,180	650	1,419,067	12%

Table 1: Breakdown of Land Use for Phase 1

Land Use	Acreage	Adjusted Flow Coefficient (GPD/ga)	Expected Flow (GPD)
Commercial	28.76	650	18,694
Low Density	100.86	800	80,688
Medium Density	9.1	1,300	11,830
High Density	9.7	2,000	19,400
			Total Expected Flow: 130,612

Utilizing the equation and coefficients previously provided, we can calculate BOD as Follows:

$$AHL_{wdr} = \frac{(8.34)(C_{wdr})(Q_{wwtf})}{(1 - R_{wwtf})}$$

Where:

$$C_{wdr} = 30$$

$$Q_{wwtf} = .131 \text{ MGD}$$

$$R_{wwtf} = .9881$$

$$BOD = 2746.14 \text{ Lb/Day}$$



Utilizing the equation and coefficients previously provided, we can calculate TSS as Follows

$$AHL_{wdr} = \frac{(8.34)(C_{wdr})(Q_{wwtf})}{(1 - R_{wwtf})}$$

Where:

$$\begin{aligned}C_{wdr} &= 30 \\Q_{wwtf} &= .131 \text{ MGD} \\R_{wwtf} &= .9865\end{aligned}$$

$$\mathbf{TSS = 2420.68 \text{ Lb/Day}}$$

The estimated calculations of BOD and TSS for the remaining 312.3 Acres that are included in the second phase of the project, and map as part of the overall Specific Plan are shown below. Calculations utilize the same adjusted flow coefficients for Commercial (6.4 Acres), Low (217.5 Acres), Medium (66.7 Acres) and High (21.7 Acres) Density Residential listed in Table 3.4 and Table 1 above and includes the acreage for the Future Elementary School. These values should be analyzed again as the project develops to ensure accuracy.

$$\mathbf{BOD = 6481.44 \text{ Lb/Day}}$$

$$\mathbf{TSS = 5713.27 \text{ Lb/Day}}$$

Please review the calculations provided and if there are any additional questions or information needed, please feel free to contact me at (559)802-3052.



Steven J. Macias, PE
Civil Engineer



Appendix A



Local Discharge Limits Development

Visalia, California

DRAFT

March 16, 2011

Prepared for:

City of Visalia

Prepared by:

Provost & Pritchard Consulting Group
Clovis, California

COPYRIGHT 2011 by PROVOST & PRITCHARD CONSULTING GROUP
ALL RIGHTS RESERVED

Provost & Pritchard Consulting Group expressly reserves its common law copyright and other applicable property rights to this document. This document is not to be reproduced, changed, or copied in any form or manner whatsoever, nor are they to be assigned to a third party without first obtaining the written permission and consent of Provost & Pritchard Consulting Group. In the event of unauthorized reuse of the information contained herein by a third party, the third party shall hold the firm of Provost & Pritchard Consulting Group harmless, and shall bear the cost of Provost & Pritchard Consulting Group's legal fees associated with defending and enforcing these rights.

TABLE OF CONTENTS

EXECUTIVE SUMMARY..... 1

1 INTRODUCTION..... 1

 1.1 WWTF Information..... 2

2 Pollutants of Concern..... 4

 2.1 EPA POCs 4

 2.2 Existing Local Limits 5

 2.3 Waste Discharge Requirement POCs..... 5

 2.4 Other Reasons for POCs 6

 2.4.1 Water Quality Criteria..... 6

 2.4.2 Biosolids Land Application Criteria 6

 2.4.3 Interference and Inhibition Criteria..... 7

 2.4.4 Protection of Treatment Works, Collection System, and Workers 7

 2.5 Summary of Controlling Limits 8

 2.6 Evaluation of Existing Data 9

 2.7 Sampling Plan..... 11

3 Maximum Allowable Headworks Loadings..... 14

 3.1 WWTF Removal Efficiencies..... 14

 3.2 Discharge Permit and Water Quality AHLs 16

 3.3 Biosolids Disposal Based AHLs 19

 3.4 Inhibition Based AHLs..... 20

 3.5 POC Maximum Allowable Headworks Loadings..... 23

4 Designating Local Limits 25

 4.1 Residential and Background Loadings..... 26

 4.2 Septage Loadings 26

 4.3 Maximum Allowable Industrial Loadings 27

 4.3.1 Safety Factor and Growth Allowance..... 27

 4.4 Local Limits Allocations..... 27

 4.4.1 Uniform Allocation..... 27

4.4.2 IU Specific Allocation 28

4.4.3 The Mass Proportion Allocation 28

4.5 Uniform Allocation of Local Limits 29

4.6 IU Specific Allocation of Local Limits 31

4.7 Comparison of Proposed and Existing Limits..... 32

4.8 Protection of the Treatment Works, Collection System, and Workers..... 33

 4.8.1 Fume Toxicity 33

 4.8.2 Oil and Grease..... 34

4.9 Public Participation 35

4.10 Implementation 35

5 Bibliography/References 36

APPENDIX A – WWTF Sampling Data

APPENDIX B – Bis (2-ethylhexyl) Phthalate Sampling Data

APPENDIX C – WWTF Biosolids Data

APPENDIX D – Residential Background Sampling Data

APPENDIX E – Septage Hauler Sampling Data

APPENDIX F – Local Limits Calculations (Uniform Allocation)

APPENDIX G – SIU Sampling Data

APPENDIX H – Local Limits Calculations (IU Specific Allocation)

LIST OF TABLES

Page

Table ES-1: Local Limits Summary	1
Table 1-1: Current SIUs	1
Table 2-1: EPA POCs	4
Table 2-2: Existing Local Limits POCs	5
Table 2-3: WDR POCs	5
Table 2-4: Summary of Controlling Limits	8
Table 2-5: Pollutants of Concern	10
Table 2-6: Sampling Plan Information	12
Table 3-1: Summary of WWTF Removal Efficiencies.....	14
Table 3-2: WDR Based AHLs.....	16
Table 3-3: Water Quality (Chronic) Based AHLs.....	17
Table 3-4: Water Quality (Agricultural Water Supply) Based AHLs.....	18
Table 3-5: Summary of Water Quality Based AHLs	18
Table 3-6: Summary of Biosolids Disposal Based AHLs	19
Table 3-7: Activated Sludge Inhibition Based AHLs	20
Table 3-8: Trickling Filter Inhibition Based AHLs.....	21
Table 3-9: Anaerobic Digester Inhibition (Conservative Pollutants) Based AHLs.....	22
Table 3-10: Anaerobic Digester Inhibition (Non-Conservative Pollutants) Based AHLs.....	22
Table 3-11: Summary Inhibition Based AHLs.....	23
Table 3-12: Maximum Allowable Headworks Loadings	24
Table 4-1: Comparison of MAHLs with Average Headworks Loadings	25
Table 4-2: Uniform Allocation of Local Limits	30
Table 4-3: IU Specific Allocation of Local Limits.....	31
Table 4-4: Comparison of Existing and Proposed Local Limits	32
Table 4-5: Fume Toxicity Discharge Screening Levels	34

ABBREVIATIONS

ACGIH.....	American Conference of Governmental Industrial Hygienists
AHL	Allowable Headworks Loading
BOD	Biochemical Oxygen Demand
CFR.....	Code of Federal Regulations
CTR.....	California Toxics Rule
EPA.....	United States Environmental Protection Agency
FOG	Fats, Oils, and Grease
GPD	Gallons Per Day
IPP	Industrial Pretreatment Program
IU.....	Industrial User
MAHL	Maximum Allowable Headworks Loading
MAIL.....	Maximum Allowable Industrial Loading
MGD.....	Million Gallons per Day
NIOSH.....	National Institute for Occupational Safety and Health
OSHA.....	Occupational Safety and Health Administration
POC	Pollutant of Concern
PPB.....	Parts Per Billion
RWQCB	Regional Water Quality Control Board
SIU	Significant Industrial User
STEL	Short Term Exposure Limit
TSS	Total Suspended Solids
TWA-TLV	Threshold Limit Value – Time Weighted Average
WDR.....	Waste Discharge Requirements
WQ	Water Quality
WQS.....	Water Quality Standard
WWTF	Wastewater Treatment Facility
*	Multiplication

EXECUTIVE SUMMARY

The City of Visalia has an approved Industrial Pretreatment Program. As such, the City is required to maintain and enforce local limits on the significant industrial users that discharge to the City’s wastewater treatment facility. The existing local limits were developed in 1992. The Regional Water Quality Control Board is requiring the City to re-evaluate their local limits.

A list of potential pollutants of concern was developed based on available sampling and treatment facility data. A sampling plan was developed and implemented to collect additional data necessary to perform the local limits evaluation. Using the information collected, the local limits were evaluated. The results of this evaluation are summarized in Table ES-1.

Table ES-1: Local Limits Summary

Pollutant	Existing Local Limit	Calculated Local Limit	Allocation Method	Proposed Local Limit
Arsenic	0.05 mg/L	0.05 mg/L	Uniform	0.05 mg/L
Boron	1.60 mg/L	Not needed		None
Cadmium	0.02 mg/L	0.08 mg/L	IU Specific	0.02 mg/L
Chromium	3.44 mg/L	5.59 mg/L	Uniform	3.44 mg/L
Copper	1.97 mg/L	2.14 mg/L	IU Specific	1.97 mg/L
Cyanide	0.16 mg/L	36.97 mg/L	IU Specific	0.16 mg/L
Lead	0.30 mg/L	0.48 mg/L	IU Specific	0.30 mg/L
Mercury	0.02 mg/L	0.04 mg/L	IU Specific	0.02 mg/L
Nickel	2.86 mg/L	5.53 mg/L	IU Specific	2.86 mg/L
Silver	0.76 mg/L	12.40 mg/L	IU Specific	0.76 mg/L
Zinc	0.64 mg/L	9.12 mg/L	IU Specific	0.64 mg/L
Pentachlorophenol	0.15 mg/L	Not needed		None
Oil & Grease	200 mg/L	609 mg/L	Uniform	200 mg/L
BOD ₅	18,161 lb/day	89,538 lb/day ¹	Not applicable	18,161 lb/day
TSS	41,633 lb/day	41,633 lb/day ¹	Not applicable	41,633 lb/day

¹Plant design capacity

SECTION ONE**1 INTRODUCTION**

The City of Visalia operates a wastewater treatment facility (WWTF) that collects the municipal wastewater generated from the City of Visalia and the Goshen Community Services District. The WWTF treats typical domestic wastes as well as waste generated from commercial and industrial users. Several of the industrial users served by the WWTF meet the definition of a Significant Industrial Users (SIUs) as defined by the United States Environmental Protection Agency (EPA) in 40 CFR 403.3. SIUs are defined as:

- Industries subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR chapter I, subchapter N;
- Any industry discharging an average of 25,000 gallons per day (gpd) or more of process wastewater;
- Any industry that contributes a waste stream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the WWTF; or
- Any industry designated by the Control Authority to have a reasonable potential to adversely affect the WWTF's operation.

Table 1-1 lists the current SIUs and the reason they are considered SIUs.

Table 1-1: Current SIUs

SIU Name	SIU Reason	SIU Name	SIU Reason
Advanced Food Products	Discharge volume	Mission Uniform	Discharge volume
Basic Chemical Solutions	Categorical – 40 CFR 442	Pregis Innovative Packaging	Potential to impact WWTF
California Dairies	Discharge volume	Provisions Food	Discharge volume
ATC Plastics (previously Heller Performance Polymers)	Potential to impact WWTF	Visalia Custom Chrome	Categorical – 40 CFR 433
JM Eagle	Potential to impact WWTF	Voltage Multipliers Inc.	Categorical – 40 CFR 469
Josten's Print. And Pub.	Potential to impact WWTF	Western Milling	Potential to impact WWTF
Kawneer Company	Categorical – 40 CFR 433		

SECTION ONE

Due to the fact that there are SIUs discharging to the WWTF, the City of Visalia is required to have an approved Industrial Pretreatment Program (IPP). The City's IPP was approved by the Regional Water Quality Control Board (RWQCB) on May 5, 1983.

Part of the IPP requirements is the development and implementation of local limits. Local limits are designed to protect the operations of the WWTF and to ensure that its discharges, whether liquid, solid, or air, comply with State and Federal requirements. The EPA published the *Local Limits Development Guidance* document in July 2004. This document outlines the procedures to develop local limits. In developing local limits the following factors may need to be considered:

- the WWTF's efficiency in treating and removing pollutants;
- the WWTF's history of complying with the Waste Discharge Requirements;
- sludge disposal methods; and
- worker health and safety concerns.

The current local limits were developed in 1992. The purpose of this project is to re-evaluate those local limits and investigate the need for stricter or additional local limits.

1.1 WWTF Information

The WWTF treats sewage from the City of Visalia and the community of Goshen. The combined population is approximately 125,000 with a service area of 30 square miles. The WWTF has a design capacity of 22 million gallons per day (MGD). The average flow for the period of January 2007 to August 2010 was 12.18 MGD, with a maximum one day flow of 14.79 MGD.

Sewage from the main trunklines enters two wet wells prior to entering the headworks of the WWTF. The headworks consists of bar screens. From the headworks, the flow goes to a set of four primary sedimentation basins. From the primary basins, the wastewater is sent to one of four plastic media filled trickling filters. From the trickling filters the water is sent to the aeration basins. The aeration basins precede the secondary sedimentation basins. After the sedimentation basins, the water is chlorinated prior to discharge. The WWTF has the ability to discharge to Mill Creek, agricultural lands, and to onsite percolation ponds. A majority of the flow is discharged to Mill Creek, with the onsite percolation ponds being the discharge point when Mill Creek is not used.

Sludge collected from the primary and secondary treatment processes is thickened in a pair of gravity belt thickeners. After thickening, the sludge is fed to one of six anaerobic digesters. After digestion, liquid from the digesters is discharged to one of two sludge pits for settling of solids. Supernatant from the sludge pits is pumped back to the headworks. The solids from the digesters are pumped to thirty unlined sludge drying

SECTION ONE

beds. After 60 to 90 days, the sludge is transferred to an onsite stockpile area. Once per year the stockpiled sludge is land applied to farmland in Merced County.

There are several streams from within the plant that are sent back to the wet wells prior to the headworks for treatment. These recycle streams are gravity thickener filtrate, secondary clarifier scum, supernatant from the sludge pits, decant from the sludge drying beds, and septage waste and chemical toilet waste. The samples obtained for the plant influent include these flows.

The WWTF accepts septage from licensed haulers. The waste from the septage haulers is discharged at a point prior to the headworks to assure treatment by the entire WWTF process. The WWTF accepts approximately 11,599 gallons per day of septage from haulers.

The processes employed in the treatment process will affect certain pollutant local limits due to inhibition levels that can disrupt the treatment process. Additionally, the ability of the WWTF to remove pollutants will affect the local limits. The interference and inhibition values are detailed in Section 2.4.3. The WWTF removal efficiencies are detailed in Section 3.1.

2 POLLUTANTS OF CONCERN

SECTION TWO

Pollutants of Concern (POCs) are those pollutants that need to be controlled to protect the WWTF, its workers, and the disposal of the treated wastewater effluent and biosolids. POCs are pollutants that may cause pass through or interference at the WWTF, cause problems in the collection system, or cause problems with the WWTF's ability to dispose of the generated biosolids.

The following sections discuss the various reasons a pollutant may be included in the list of POCs. There may be numerous reasons to consider a pollutant a POC. The fact that a pollutant is a POC does not mean that a local limit must be developed for it. Whether a local limit is needed for a POC is discussed in Section 4. If a pollutant is determined to be a POC, data must be collected for it and a detailed evaluation of the POC must be performed.

2.1 EPA POCs

The EPA has established 15 pollutants that are often found in treatment plant effluent and biosolids. The EPA considers these 15 pollutants to be POCs and need to be evaluated as part of any local limits evaluation. These pollutants are listed in Table 2-1.

Table 2-1: EPA POCs

EPA POCs	
Arsenic	Cadmium
Chromium	Copper
Cyanide	Lead
Mercury	Nickel
Silver	Zinc
Molybdenum	Selenium
BOD ₅	Total Suspended Solids
Ammonia	

2.2 Existing Local Limits

The City of Visalia has established local limits for several pollutants. These pollutants are also considered POCs. Table 2-2 lists the pollutants that the City of Visalia currently regulates through a local limit.

Table 2-2: Existing Local Limits POCs

Local Limits POCs	
Arsenic	Boron

SECTION TWO

Cadmium	Chromium
Copper	Cyanide
Lead	Mercury
Nickel	Silver
Zinc	Pentachlorophenol
Oil & Grease	

2.3 Waste Discharge Requirement POCs

On September 21, 2006, the RWQCB issued Waste Discharge Requirements (WDR) for the City of Visalia WWTF. The WDR contains pollutant limitations that the WWTF must comply with on the discharge to Mill Creek, the Use Area (agricultural lands), or to the onsite disposal ponds. The pollutants that are regulated on the effluent are considered POCs. Table 2-3 lists the pollutants that have limitations listed in the WDR.

Table 2-3: WDR POCs

WDR POCs	
BOD5	TSS
Oil & Grease	Chlorides
Lead	Ammonia

2.4 Other Reasons for POCs

There are several other reasons that a pollutant may be included on the POC list according to the EPA Guidance Manual, including: water quality criteria, biosolid land application restrictions, and treatment plant inhibitions. There are numerous pollutants that are listed under these criteria. However, to be considered a POC at least one of the following conditions must be met:

- The maximum pollutant concentration in the plant effluent is more than one-half the allowable effluent concentration required to meet a water quality criteria limit;
- The maximum pollutant concentration in the sludge is more than one-half the applicable biosolids residual disposal limit;
- The maximum pollutant concentration in a plant influent grab sample is more than one-half the inhibition threshold; or
- The maximum pollutant concentration in a plant influent grab composite sample is more than one-fourth the inhibition threshold.

2.4.1 Water Quality Criteria

SECTION TWO

In the WDR for the WWTF, the RWQCB stated that Mill Creek's beneficial uses are warm freshwater habitat, water contact recreation, and human health protection (consumption of aquatic organisms only). There is normally no flow in Mill Creek upstream of the WWTF, so the discharge from the WWTF constitutes the flow in Mill Creek. Therefore, there is no dilution of the WWTF effluent in Mill Creek. There are numerous constituents that have limitations based on the beneficial uses in Mill Creek.

Additionally, the State of California has limitations for water used for agricultural uses. There are numerous constituents that have limitations based on the potential agricultural use of the treated effluent.

For both the beneficial and agricultural use protection, only pollutants in concentrations that are greater than 50% of the water quality standard are considered POCs.

2.4.2 Biosolids Land Application Criteria

The City of Visalia disposes of biosolids by land application. The WWTF must prohibit industrial users from discharging pollutants that could cause a violation of applicable sludge disposal regulations. The national sludge standards are contained in 40 CFR 503. These limitations are based on human health and environmental risks and include numerical pollutant limits, operational standards, management practices, and requirements for sampling, record keeping, and reporting. The State of California has adopted the federal standards in 40 CFR 503. Additionally, the State of California has land application standards set forth in Title 22. The pollutants contained in the 503 and Title 22 regulations are considered for evaluation as a POC. In order to be considered a POC, the maximum pollutant concentration in the sludge must be more than one-half the applicable biosolids residual disposal limit.

2.4.3 Interference and Inhibition Criteria

The pretreatment regulations set forth by the EPA in 40 CFR 403.5(a) state that there must be prohibitions against the discharge of pollutants from an industrial user that may cause interference at the WWTF. Interference, as defined by the EPA, means a discharge that inhibits or disrupts a treatment plant and causes a violation of the WWTF's WDR or biosolids sludge requirements. The EPA recommends that pollutants be considered POCs if they have caused interference in the past. Based on the City of Visalia WWTF historical data, there have been no pollutants that have caused interference at the plant in the past.

There are certain pollutants that may not cause an effluent discharge or biosolids disposal violation but that may cause disruptions to the WWTF operations. The EPA *Local Limits Development Guidance* document contains a list of pollutants and inhibition concentrations for various treatment plant processes. The pollutants that have inhibition concentrations are considered POCs if the following criteria have been met:

- The maximum pollutant concentration in a plant influent grab sample is more than one-half the inhibition threshold; or

SECTION TWO

- The maximum pollutant concentration in a plant influent grab composite sample is more than one-fourth the inhibition threshold.

2.4.4 Protection of Treatment Works, Collection System, and Workers

Explosive and flammable pollutants can threaten the integrity of the collection system and the health and safety of the WWTF workers. Under the right conditions, the accumulation of such pollutants can produce explosions or fires. Local limits may be needed if these pollutants are expected to be discharged from industrial users.

The fume toxicity levels of certain pollutants indicate the likelihood that a WWTF worker will suffer adverse health effects when the level is approached or exceeded. Volatile organic compound vapors are the major concern because they can be toxic and carcinogenic, and may produce chronic health affects after various periods of exposure. The EPA *Local Limits Development Guidance* document list the concentrations for the various exposure levels set forth by the National Institute for Occupational Safety and Health (NIOSH), Occupational Health and Safety Administration (OSHA), and American Conference of Governmental Industrial Hygienists (ACGIH). Local limits may be needed if these pollutants are expected to be discharged from industrial users at concentrations that may pose a risk to WWTF workers.

2.5 Summary of Controlling Limits

Based on the criteria discussed in Section 2, several potential pollutants of concern and their associated controlling limit and inhibition limit were tabulated and summarized in Table 2-4.

Table 2-4: Summary of Controlling Limits

Primary Compound Name	Controlling Limit (ppb)	Source	Inhibition Criteria (ppb)	Treatment Process
Ammonia	3,500	Fresh Water Aquatic 4-day average (USEPA)	480,000 ⁽⁴⁾	Activated Sludge
Arsenic	100	Agricultural WQ Limit	100 ^(1,2,3)	Activated Sludge
Boron	700	Agricultural WQ Limit		
Cadmium	0.27	Fresh Water Aquatic 4-day average (USEPA)	1,000 ^(2,3)	Activated Sludge
Chloride	106,000	Agricultural WQ Limit		
Chromium VI			1,000 ^(2,3)	Activated Sludge

SECTION TWO

Local Discharge Limits Development

Copper	9.3	Fresh Water Aquatic 4-day average (CTR)	1,000 ^(1,2,3)	Activated Sludge
Cyanide (total)	5.2	Fresh Water Aquatic 4-day average (CTR)	100 ^(1,2,3)	Activated Sludge
Lead	3.2	Fresh Water Aquatic 4-day average (CTR)	1,000 ⁽³⁾	Activated Sludge
Mercury			100 ^(2,3)	Activated Sludge
Molybdenum	10	Agricultural WQ Limit		
Nickel	52	Fresh Water Aquatic 4-day average (CTR)	1,000 ^(2,3)	Activated Sludge
Oil and Grease	10,000	Waste Discharge Requirements		
Selenium	5.0	Fresh Water Aquatic 4-day average (CTR)		
Silver	3.8	Fresh Water Aquatic Instantaneous Max (USEPA)	13,000 ⁽³⁾	Anaerobic Digestion
Sodium	69,000	Agricultural WQ Limit		
Zinc	120	Fresh Water Aquatic 4-day average (CTR)	300 ⁽³⁾	Activated Sludge
Biochemical Oxygen Demand (BOD)	30,000	Waste Discharge Requirements		
Primary Compound Name	Controlling Limit (ppb)	Source	Inhibition Criteria (ppb)	Treatment Process
Total Suspended Solids (TSS)	30,000	Waste Discharge Requirements		
Chloroform	60	Exposure Limits	1,000 ⁽²⁾	Anaerobic Digestion
Ethylbenzene	1,659	Exposure Limits	200,000 ⁽³⁾	Activated Sludge
Toluene	2,075	Exposure Limits	200,000 ⁽³⁾	Activated Sludge

- 1) Jenkins, D.I., and Associates. 1984. *Impact of Toxics on Treatment Literature Review*.
- 2) Russell, L.L., C.B. Cain, and D.I. Jenkins. 1984. *Impacts of Priority Pollutants on Publicly Owned Treated Works Processes: A Literature Review*. 1984 Purdue Industrial Waste Conference.
- 3) Anthony, R.M., and L.H. Briemburst. 1981. *Determining Maximum Influent Concentrations of Priority Pollutants for Treatment Plants*. Journal Water Pollution Control Federation 53(10):1457-1468.
- 4) U.S. EPA. 1986. *Working Document; Interferences at Publicly Owned Treatment Works*. September 1986.

2.6 Evaluation of Existing Data

The City of Visalia provided the following data for the local limits evaluation:

- Daily WWTF flow and influent/effluent sampling

SECTION TWO

- WWTF Priority Pollutant scans
- Biosolids sampling
- SIU sampling
- Septage sampling

The sampling data provided above was for the period of January 2007 to September 2010. This data is shown in Appendices A, B, C, and F.

The existing data was compared to the values in Table 2-4 and the criteria in Section 2.5. Table 2-5 lists the pollutants of concern and the reason the pollutant is being considered a POC.

SECTION TWO

Local Discharge Limits Development

Table 2-5: Pollutants of Concern

Pollutant	Effluent concentration more than half of effluent standard	Sludge concentration more than half of sludge disposal standard	Influent concentration more than 25% of inhibition concentration	Required by EPA	Existing local limit
BOD				X	X
TSS				X	X
Ammonia				X	
FOG					X
Arsenic				X	X
Boron					X
Cadmium				X	X
Chromium			X	X	X
Copper	X			X	X
Lead	X			X	X
Mercury				X	X
Molybdenum	X	X		X	
Nickel				X	X
Selenium	X			X	
Silver	X			X	X
Sodium	X				
Zinc		X	X	X	X
Chloride	X				
Cyanide	X		X	X	X
Bis (2-ethylhexyl) phthalate	X				
Pentachlorophenol					X
Tetrachloroethene	X				
Edosulfan II	X				
Endrin	X				
Heptachlor	X				
Bromodichloromethane	X				
Bromoform	X				
4,4' DDE	X				

SECTION TWO

2.7 Sampling Plan

A review of the existing City of Visalia information showed there was additional information needed to complete the local limits evaluation.

The City of Visalia has no recent (last five years) monitoring data for residential or commercial users. A sampling plan was needed to address additional information needed for the evaluation. The residential samples were taken to cover every day of the week over at least a two week period (Week 1 – Monday, Wednesday, Friday, Sunday, Week 2 – Tuesday, Thursday, Saturday). The exact dates were adjusted as needed to fit into existing staff work schedules and the availability of the laboratory to perform the required tests. For the sampling at the WWTF, samples were obtained covering at least two different days. No sampling was performed within 48 hours of a measurable precipitation event. Commercial sampling required only one day of sampling. Table 2-6 lists the pollutants that should be monitored, the location, number of samples, test methods, and the preferred detection limit. Test methods listed are EPA test methods except those beginning with SM, which are Standard Methods test procedures.

Residential Sampling

The residential sampling was conducted to cover geographically diverse areas of the City. Based on the layout of the wastewater collection system the following locations were sampled to provide the residential sampling information:

- Comstock
- Hillsdale
- Evergreen
- Mary and County Center

Commercial Sampling

A majority of the commercial establishments within the City are restaurants. The sampling for the commercial loading was conducted at a commercial shopping area that includes some restaurants. The following location was sampled to represent commercial loading:

- Linwood
- Alley off Court

Treatment Plant

Samples and estimates of flow for the following processes were obtained:

- Plant influent
- Primary effluent
- Secondary effluent prior to chlorination
- Feed to anaerobic digesters

SECTION TWO

- Plant final effluent

Treatment Plant Influent Return Flows

Samples and estimates of flow for the following processes were obtained:

- Scum funnels
- GBT Filtrate
- Supernatant Pit
- SRS (Septage) Station

In addition to the sampling information, the basis-of-design for the treatment plant is needed to ascertain the design loadings for the non-conservative pollutants (ammonia, BOD, and TSS).

Table 2-6: Sampling Plan Information

Pollutant	Residential (seven sampling events)	Commercial (one sampling event)	Treatment Plant (two sampling events)	Treatment Plant influent return flow streams (two sampling events)	Test Method	Preferred Detection Limit
BOD	X	X	X	X	SM 5210B	2 mg/L
TSS	X	X	X	X	SM 2540D	1 mg/L
Ammonia	X	X	X	X	350.1	1 mg/L
FOG (HEM)	X	X	X	X	1664	10 mg/L
Arsenic	X		X	X	200.8	1 ug/L
Boron	X		X	X	200.7	0.05 mg/L
Cadmium	X		X	X	200.8	0.05 ug/L
Chromium	X		X	X	200.8	1 ug/L
Copper	X		X	X	200.8	2 ug/L
Lead	X		X	X	200.8	0.5 ug/L
Mercury	X	X	X	X	1631	0.5 ng/L
Molybdenum	X		X	X	200.8	1 ug/L
Nickel	X		X	X	200.8	1 ug/L
Selenium	X		X	X	200.8	1 ug/L
Silver	X		X	X	200.8	1 ug/L
Pollutant	Residential (seven sampling events)	Commercial (one sampling event)	Treatment Plant (two sampling events)	Treatment Plant influent return flow streams	Test Method	Preferred Detection Limit

SECTION TWO**Local Discharge Limits Development**

			events)	(two sampling events)		
Sodium	X		X	X	200.7	1 mg/L
Zinc	X		X	X	200.8	5 ug/L
Chloride	X	X	X	X	300.0	2.0 mg/L
Cyanide	X		X	X	SM4500	5 ug/L
Bis (2-ethylhexyl) phthalate	X		X	X	625	5 ug/L
Pentachlorophenol	X		X	X	625	10 ug/L
Tetrachloroethene	X		X	X	624	0.5 ug/L
Endosulfan II	X		X	X	608	0.05 ug/L
Endrin	X		X	X	608	0.05 ug/L
Heptachlor	X		X	X	608	0.05 ug/L
Bromodichloromethane	X		X	X	624	0.5 ug/L
Bromoform	X		X	X	624	0.5 ug/L
4,4' DDE	X		X	X	608	0.05 ug/L

SECTION THREE**3 MAXIMUM ALLOWABLE HEADWORKS LOADINGS**

After determining the POCs (Table 2-5) and gathering the additional sampling data, the maximum allowable headworks loadings (MAHLs) can be calculated. The MAHL is the estimated upper limit of a particular pollutant loading to the WWTF intended to prevent pass through or interference. The MAHL for each POC is calculated by the following steps:

1. Calculation of WWTF removal efficiency for the POC;
2. Calculate the allowable headworks loading (AHLs) for the various environmental criteria (such as WDR limits, water quality limits, sludge disposal limits, inhibition values);
3. Designate the MAHL as the most stringent allowable headworks loading for the POC.

3.1 WWTF Removal Efficiencies

Based on the sampling data collected from the City of Visalia WWTF, the removal efficiencies for the POCs were calculated. The removal efficiencies shown in Table 3-1 are the average removal percentages for each POC. The detailed data used to calculate the removal efficiencies is contained in Appendix A. For purposes of calculating the removal efficiencies, any reported concentration that was below the detection limit was assumed to be half the detection limit. Any negative removal efficiencies were assumed to be zero.

Table 3-1: Summary of WWTF Removal Efficiencies

POC	Removal Efficiency	Number of Samples
BOD	98.81%	567
TSS	98.65%	919
Ammonia	44%	88
FOG	96%	4
Arsenic	29%	4
Boron	2%	6
Cadmium	67% ¹	6
Chromium	20%	6
Copper	88%	6
Lead	62%	6

SECTION THREE

POC	Removal Efficiency	Number of Samples
Mercury	95%	5
Molybdenum	35%	4
Nickel	37%	6
Selenium	40%	6
Silver	40%	6
Sodium	3%	5
Zinc	79%	6
Chloride	0%	5
Cyanide	69% ¹	5
Bis (2-ethylhexyl) phthalate	83%	6
Pentachlorophenol	0% ²	6
Tetrachloroethene	0% ²	6
Endosulfan II	0% ²	4
Endrin	0% ²	5
Heptachlor	0% ²	5
Bromodichloromethane	0% ²	6
Bromoform	0% ²	6
4,4' DDE	0% ²	6
¹ EPA median removal percentage used since most results were below detection limit.		
² Influent and Effluent samples were all below detection limit.		

The sampling plan results showed that for all samples, pentachlorophenol, tetrachloroethene, endosulfan II, endrin, heptachlor, bromodichloromethane, bromoform, and 4,4' DDE were not present in the influent or effluent of the WWTF. Therefore, these pollutants were removed from consideration as POCs.

Bis (2-ethylhexyl) phthalate was detected above the detection limit in some of the regular monthly WWTF effluent samples. However, the field blanks obtained during those sampling events showed concentrations greater than the effluent sample values. This data is shown in Appendix B. Based on this information, the effluent concentrations for bis (2-ethylhexyl) phthalate are considered to be below the detection limit. Therefore, bis (2-ethylhexyl) phthalate was removed from consideration as a POC.

SECTION THREE

The sampling plan results also showed that the return of WWTF recycle flows to the headworks had a minimal impact on the headworks loading to the WWTF. The return flows are from the scum funnels, GBT filtrate, supernatant pit and the septage receiving station. These flows are estimated to make up approximately 2% of the headworks flow.

3.2 Discharge Permit and Water Quality AHLs

The RWQCB issued the WWTF Waste Discharge Requirements (WDR) that regulates the discharge from the plant. The AHL for POCs with WDR limitations is shown in Equation 1.

Equation 1 – AHL based on WDR limits

$$AHL_{wdr} = \frac{(8.34)(C_{wdr})(Q_{wwtf})}{(1-R_{wwtf})}$$

Where:

- AHL_{wdr} = AHL based on WDR limit, lb/day
- C_{wdr} = WDR permit limit, mg/L
- Q_{wwtf} = WWTF average flow rate, MGD
- R_{wwtf} = Plant removal efficiency, as decimal
- 8.34 = Conversion factor

Table 3-2 shows the allowable headworks loading for the POCs based upon the limitations contained in the WDR.

Table 3-2: WDR Based AHLs

Pollutant	WWTF Flow (MGD) (Q _{wwtf})	WDR Limit (mg/l) (C _{wdr})	Select Removal Efficiency (from list)	Removal Efficiency (%) (R _{wwtf})	Allowable Headworks (lbs/day)
Lead	12.18	0.05	User Entered	62.19	13.434
Ammonia	12.18	25	User Entered	43.89	4525.7652
BOD	12.18	30	User Entered	98.81	256354.5218
TSS	12.18	30	User Entered	98.65	226555.1037

The WDR issued does not contain limitations for all the POCs mentioned in Table 2-5. For the pollutants without limitation in the WDR, the EPA guidance recommends using AHLs based on State or Federal Water Quality Standards. The water quality standards can be based upon short term aquatic life affects (acute) or long term affects (chronic). Water quality standards can also be based upon human health effects. The human health effects can be from drinking of the water, recreational use of the water, or consumption of aquatic life. According to the WDR, the discharge to Mill Creek is

SECTION THREE

protected for agricultural water supply, water contact and noncontact water recreation, warm freshwater habitat, and groundwater recharge. The criteria used for this comparison is discussed in Section 2.4. The AHL for POCs that have water quality standards is shown in Equation 2.

Equation 2 – AHL based on Water Quality limits

$$AHL_{wq} = \frac{(8.34)[(C_{wq})*(Q_{str}+Q_{wwtf}) - (C_{str}*Q_{str})]}{(1-R_{wwtf})}$$

Where:

- AHL_{wq} = AHL based on water quality criteria, lb/day
- C_{wq} = State or Federal water quality standard, mg/L
- C_{str} = Receiving stream background concentration, mg/L
- Q_{wwtf} = WWTF average flow rate, MGD
- Q_{str} = Receiving stream (upstream) flow rate, MGD
- R_{wwtf} = Plant removal efficiency, as decimal
- 8.34 = Conversion factor

The equation allows for instantaneous mixing of the discharge with the receiving stream. Since there is normally no flow in Mill Creek upstream of the WWTF discharge, the receiving stream concentration and receiving stream flow were considered to be zero.

Table 3-3 shows the allowable headworks loading for the POCs based upon the water quality standards.

Table 3-3: Water Quality (Chronic) Based AHLs

Pollutant	WWTF Flow (MGD) (Q _{wwtf})	Receiving Stream Flow (MGD) (Q _{str1})	Receiving Stream Concentration (mg/l) (C _{str})	Chronic WQS (mg/l) (C _{wq})	Removal Efficiency (%) (R _{wwtf})	Allowable Headworks (lbs/day)
Arsenic	12.18	0.00	0	0.15000	28.98	21.4539
Cadmium	12.18	0.00	0	0.00027	67.00	0.0831
Copper	12.18	0.00	0	0.00930	88.14	7.9671
Cyanide	12.18	0.00	0	0.00520	69.00	1.7039
Lead	12.18	0.00	0	0.00320	62.19	0.8598
Mercury	12.18	0.00	0	0.00077	95.17	1.6183
Nickel	12.18	0.00	0	0.05200	37.22	8.4145
Selenium	12.18	0.00	0	0.00500	40.26	0.8501
Zinc	12.18	0.00	0	0.12000	79.37	59.0870
Ammonia	12.18	0.00	0	25.00000	43.89	4525.7652
Chloride	12.18	0.00	0	230.00000	0.00	23363.676

SECTION THREE

Table 3-4 shows the allowable headworks loading for the POCs based upon the agricultural water supply standards.

Table 3-4: Water Quality (Agricultural Water Supply) Based AHLs

Pollutant	WWTF Flow (MGD) (Qwwtf)	Receiving Stream Flow (MGD) (Qstr2)	Receiving Stream Conc (mg/l) (Cstr)	Agricultural WQS (mg/l) (Cwq)	Removal Efficiency (%) (Rwwtf)	Allowable Headworks (lbs/day)
Arsenic	12.18	0.00	0	0.10000	28.98	14.3026
Molybdenum	12.18	0.00	0	0.01000	35.00	1.5628
Boron	12.18	0.00	0	0.70000	1.85	72.4485
Chloride	12.18	0.00	0	106.00000	0.00	10767.6072

Table 3-5 shows a summary of the water quality based AHLs. The most restrictive (lowest) loading for each POC has been highlighted.

Table 3-5: Summary of Water Quality Based AHLs

Pollutant	Allowable Headworks (NPDES) (lbs/day)	Allowable Headworks (CHRONIC) (lbs/day)	Allowable Headworks (ACUTE) (lbs/day)	Allowable Headworks (WATER QUALITY) (lbs/day)
Arsenic	-	23.4539	14.3026	14.3026
Cadmium	-	0.0831	-	0.0831
Copper	-	7.9671	-	7.9671
Cyanide	-	1.7039	-	1.7039
Lead	13.4337	0.8598	-	0.8598
Mercury	-	1.6183	-	1.6183
Molybdenum	-	-	1.5628	1.5628
Nickel	-	8.4145	-	8.4145
Selenium	-	0.8501	-	0.8501
Zinc	-	59.0870	-	59.0870
Ammonia	4525.7652	4525.7652	-	4525.7652
BOD	256354.5218	-	-	256354.5218
TSS	226555.1037	-	-	226555.1037
Boron	-	-	72.4485	72.4485
Chloride	-	23363.6760	10767.6072	10767.6072
FOG	22573.6000	-	-	22573.6000

3.3 Biosolids Disposal Based AHLs

SECTION THREE

The biosolids produced at the treatment plant are eventually land applied. The Federal sludge disposal regulations, 40 CFR Part 503, establish limitations for certain metals that are normally seen in industrial discharges. Additionally, California Title 22 contains additional pollutant limitations on the land application of biosolids. These limitations are converted to AHLs for the POCs using Equation 3.

Equation 3 – AHL based on Biosolids Disposal limits

$$AHL_{\text{bsol}} = \frac{(0.0022)(C_{\text{bsol}})(Q_{\text{bsol}})}{(1-R_{\text{wwtf}})}$$

Where:

AHL_{bsol} = AHL based on biosolids disposal limit, lb/day

C_{bsol} = Biosolids limitation, mg/kg dry sludge

Q_{bsol} = Total sludge flow to disposal, dry metric tons per day

R_{wwtf} = Plant removal efficiency, as decimal

0.0022 = Conversion factor

Table 3-6 shows a summary of the biosolids disposal based AHLs. Where a limitation existed for a pollutant in both 503 and Title 22, the most stringent (lowest) limit is used in the table. Details of the Title 22 land application calculations are contained in Appendix C.

Table 3-6: Summary of Biosolids Disposal Based AHLs

Pollutant	WWTF Flow (MGD) (Q _{wwtf})	Sludge Flow to Disposal (MTD) (Q _{bsol})	Land Application Standard (mg/kg) (C _{bsol})	Removal Efficiency (%) (R _{wwtf})	Allowable Headworks (lbs/day) (L _{hw})
Arsenic	12.18	4.358636364	41 ⁽¹⁾	28.98	1.3568
Cadmium	12.18	4.358636364	17.86074 ⁽²⁾	67.00	0.2556
Chromium	12.18	4.358636364	2833.905 ⁽²⁾	20.41	133.173
Copper	12.18	4.358636364	1500 ⁽¹⁾	88.14	16.3185
Lead	12.18	4.358636364	300 ⁽¹⁾	62.19	4.6255
Mercury	12.18	4.358636364	17 ⁽¹⁾	95.17	0.1713
Molybdenum	12.18	4.358636364	18 ⁽¹⁾	35.00	0.4931
Nickel	12.18	4.358636364	420 ⁽¹⁾	37.22	10.8190
Selenium	12.18	4.358636364	35.21127 ⁽²⁾	40.26	0.8387
Silver	12.18	4.358636364	566.781 ⁽²⁾	40.42	13.4456
Zinc	12.18	4.358636364	2800 ⁽¹⁾	79.37	33.8280

(1)Based on 40 CFR Part 503 regulations.(2)Based on California Title 22 calculations.

SECTION THREE

3.4 Inhibition Based AHLs

Certain pollutant concentrations in wastewater or sludge can cause operational problems for biological treatment processes. The City of Visalia WWTF operates the following biological processes that may be subject to inhibition issues: activated sludge, trickling filters, and anaerobic sludge digestion. The WWTF has not had historical issues with pollutants causing upsets of the biological processes. The EPA guidance document contains inhibition values for pollutants that have the potential to upset biological treatment processes. These inhibition limitations are converted to AHLs for the POCs using Equation 4, Equation 5, and Equation 6.

Equation 4 – AHL based on Activated Sludge Inhibition Values

$$AHL_{act} = \frac{(8.34)(C_{act})(Q_{wwtf})}{(1-R_{prim})}$$

Where:

AHL_{act} = AHL based on activated sludge inhibition, lb/day

C_{act} = Inhibition criterion for activated sludge, mg/L

Q_{wwtf} = WWTF average flow rate, MGD

R_{prim} = Removal efficiency from headworks to primary treatment effluent, as decimal (assumed using EPA removal values)

8.34 = Conversion factor

Table 3-7 shows the calculated AHLs based on activated sludge inhibition values.

Table 3-7: Activated Sludge Inhibition Based AHLs

Pollutant	WWTF Flow (MGD) (Q_{wwtf})	Activated Sludge Inhibition Level (mg/l) (C_{act})	Removal Efficiency (%) (R_{prim})	Allowable Headworks (lbs/day) (L_{hw})	User Entered Removal Efficiency (%)
Arsenic	12.18	0.1	91.90	125.4089	91.90
Cadmium	12.18	1	90.00	1015.812	90.00
Chromium	12.18	1	49.30	200.3574	49.30
Copper	12.18	1	96.10	2604.646	96.10
Cyanide	12.18	0.1	90.00	101.5812	90.00
Lead	12.18	1	80.00	507.9060	80.00
Mercury	12.18	0.1	93.20	149.3841	93.20
Nickel	12.18	1	55.20	226.7438	55.20
Zinc	12.18	0.3	96.00	761.8590	96.00
Ammonia	12.18	480	0.00	48758.98	0.00

SECTION THREE

Equation 5 – AHL based on Trickling Filter Inhibition Values

$$AHL_{tric} = \frac{(8.34)(C_{tric})(Q_{wwtf})}{(1-R_{prim})}$$

Where:

- AHL_{tric} = AHL based on trickling filter inhibition, lb/day
- C_{tric} = Inhibition criterion for trickling filters, mg/L
- Q_{wwtf} = WWTF average flow rate, MGD
- R_{prim} = Removal efficiency from headworks to primary treatment effluent, as decimal (assumed using EPA removal values)
- 8.34 = Conversion factor

Table 3-8 shows the calculated AHLs based on trickling filter inhibition values.

Table 3-8: Trickling Filter Inhibition Based AHLs

Pollutant	WWTF Flow (MGD) (Q _{wwtf})	Trickling Filter Inhibition Level (mg/l) (C _{tric})	Select Removal Efficiency (from list)	Removal Efficiency (%) (R _{prim})	Allowable Headworks (lbs/day) (L _{hw})	EPA Guidance Removal Efficiency (%)
Chromium	12.18	3.5	Default (Through Trick. Fil.)	55.00	790.076	55.00
Cyanide	12.18	30	Default (Through Trick. Fil.)	59.00	7432.77	59.00

Equation 6 – AHL based on Anaerobic Digestion Inhibition Values (Conservative Pollutants)

$$AHL_{dig} = \frac{(8.34)(C_{diginb})(Q_{dig})}{R_{wwtf}}$$

Where:

- AHL_{dig} = AHL based on anaerobic digestion inhibition, lb/day
- C_{diginb} = Inhibition criterion for sludge digester, mg/L
- Q_{dig} = Sludge flow rate to digester, MGD
- R_{wwtf} = Plant removal efficiency, as decimal
- 8.34 = Conversion factor

Table 3-9 shows the calculated AHLs based on anaerobic digester inhibition values for conservative pollutants.

Table 3-9: Anaerobic Digester Inhibition (Conservative Pollutants) Based AHLs

SECTION THREE

Local Discharge Limits Development

Pollutant	WWTF Flow (MGD) (Q _{wwtf})	Sludge Flow to Digester (MGD) (Q _{dig})	Anaerobic Digester Inhibition Level (mg/l) (C _{crit})	Removal Efficiency (%) (R _{wwtf})	Allowable Headworks (lbs/day) (L _{hw})
Arsenic	12.18	0.03833	1.6	28.98	1.7651
Cadmium	12.18	0.03833	20	67.00	9.5425
Chromium	12.18	0.03833	130	20.41	203.661
Copper	12.18	0.03833	40	88.14	14.5071
Lead	12.18	0.03833	340	62.19	174.764
Nickel	12.18	0.03833	10	37.22	8.5876
Silver	12.18	0.03833	13	40.42	10.2811
Zinc	12.18	0.03833	400	79.37	161.1051

Equation 7 – AHL based on Anaerobic Digestion Inhibition Values (Non-Conservative Pollutants)

$$AHL_{dig} = \frac{(C_{diginb}) * L_{inf}}{(C_{dig})}$$

Where:

AHL_{dig} = AHL based on anaerobic digestion inhibition, lb/day

C_{diginb} = Inhibition criterion for sludge digester, mg/L

C_{dig} = Existing pollutant level in sludge, mg/L

L_{inf} = WWTF influent loading, lb/day

Table 3-10 shows the calculated AHLs based on anaerobic digester inhibition values for non-conservative pollutants.

Table 3-10: Anaerobic Digester Inhibition (Non-Conservative Pollutants) Based AHLs

Pollutant	WWTF Flow (MGD) (Q _{wwtf})	Average Influent Conc (mg/l)	Average Influent Load (lbs/day) (L _{inf})	Digester Pollutant Conc (mg/l) (C _{dig})	Anaerobic Digester Inhibition Level (mg/l) (C _{diginb})	Allowable Headworks (lbs/day) (L _{hw})
Cyanide	12.18	2.50	253.9530	3.73	1	68.0839
Ammonia	12.18	95.50	9701.0046	4214.25	1500	3452.929

Table 3-11 shows a summary of the inhibition based AHLs. The most restrictive (lowest) loading for each POC has been highlighted.

Table 3-11: Summary Inhibition Based AHLs

SECTION THREE**Local Discharge Limits Development**

Pollutant	Allowable Headworks (ACT. SLUDGE) (lbs/day)	Allowable Headworks (TRICK. FILTER) (lbs/day)	Allowable Headworks (DIG. - CONSERV.) (lbs/day)	Allowable Headworks (DIG. - NON-CONS.) (lbs/day)	Allowable Headworks (INHIB) (lbs/day)
Arsenic	125.4089	-	1.7651	-	1.7651
Cadmium	1015.812	-	9.5425	-	9.5425
Chromium	200.3574	790.0760	203.6605	-	200.3574
Copper	2604.646	-	14.5071	-	14.5071
Cyanide	101.5812	7432.770	-	68.0839	68.0839
Lead	507.9060	-	174.7642	-	174.7642
Mercury	149.3841	-	-	-	149.384
Nickel	226.7438	-	8.5876	-	8.5876
Silver	-	-	10.2811	-	10.2811
Zinc	761.8590	-	161.1051	-	161.1051
Ammonia	48758.97	-	-	3452.9292	3452.92

3.5 POC Maximum Allowable Headworks Loadings

The maximum allowable headworks loading is the lowest of the AHLs calculated for each POC. Influent loadings below the MAHL will lead to compliance with the AHLs based on all environmental and treatment plant criteria. Table 3-12 shows a summary of AHLs as well as the MAHL for each POC.

SECTION THREE**Table 3-12: Maximum Allowable Headworks Loadings**

Pollutant	Allowable Headworks (WATER QUALITY) (lbs/day)	Allowable Headworks (INHIBITION) (lbs/d)	Allowable Headworks (SLUDGE) (lbs/d)	Maximum Allowable Headworks (MAHL - lbs/d)
Arsenic	14.3026	1.7651	1.3568	1.3568
Cadmium	0.0831	9.5425	0.2556	0.0831
Chromium	-	200.3574	133.1733	133.1733
Copper	7.9671	14.5071	16.3185	7.9671
Cyanide	1.7039	68.0839	-	1.7039
Lead	0.8598	174.7642	4.6255	0.8598
Mercury	1.6183	149.3841	0.1713	0.1713
Molybdenum	1.5628	-	0.4931	0.4931
Nickel	8.4145	8.5876	10.8190	8.4145
Selenium	0.8501	-	0.8387	0.8387
Silver	-	10.2811	13.4456	10.2811
Zinc	59.0870	161.1051	33.8280	33.8280
Ammonia	4525.7652	3452.9292	-	3452.9292
BOD	256354.5218	-	-	256354.5218
TSS	226555.1037	-	-	226555.1037
Boron	72.4485	-	-	72.4485
Chloride	10767.61	-	-	10767.61
FOG	22573.6000	-	-	22573.6000

SECTION FOUR

4 DESIGNATING LOCAL LIMITS

After the calculation of the maximum allowable headworks loadings for the POCs, the POCs that require a local limit must be determined. The EPA guidance document recommends developing local limits for those POCs where the average influent loading exceeds 60% of the MAHL. Table 4-1 shows a comparison of MAHLs with the average headworks loadings for each POC. The highlighted POCs are those whose average influent loadings exceed 60% of the MAHL and will be evaluated for local limits.

Table 4-1: Comparison of MAHLs with Average Headworks Loadings

Pollutant	Maximum Allowable Headworks (MAHL - lbs/d)	Average Influent Loading (lbs/day)	Average Percent Loaded (%)
Arsenic	1.3568	1.0959	80.7732
Cadmium	0.0831	0.1060	127.5781
Chromium	133.1733	0.4472	0.3358
Copper	7.9671	4.0814	51.2283
Cyanide	1.7039	0.2541	14.9108
Lead	0.8598	0.4302	50.0408
Mercury	0.1713	0.0058	3.3700
Molybdenum	0.4931	0.2642	53.5811
Nickel	8.4145	0.5098	6.0590
Selenium	0.8387	0.0825	9.8349
Silver	10.2811	0.7183	6.9870
Zinc	33.8280	15.8541	46.8668
Ammonia	3452.9292	2471.1932	71.5680
BOD	256354.5218	33233.2884	12.9638
TSS	226555.1037	35048.0272	15.4700
Boron	72.4485	0.1075	0.1483
Chloride	10767.6072	5447.2961	50.5897
FOG	22573.6000	5793.2500	25.6638

Based on the information shown in Table 4-1, there is no local limit necessary for molybdenum, selenium, boron, and chloride. No local limit is necessary for ammonia since a review SIU data for ammonia shows little or no ammonia in the industrial discharge and the influent loading is 71.6% of the MAHL for ammonia.

SECTION FOUR

4.1 Residential and Background Loadings

There are many other sources of wastewater to the WWTF besides the regulated industrial user flows. These other sources include domestic (residential) waste, storm water, inflow and infiltration, and commercial dischargers. Because the WWTF does not control the discharges from these sources, the loading contributed from these uncontrolled sources must be deducted from the MAHL to determine the loading available for industrial dischargers.

The City of Visalia has a separated sewer system so storm water is conveyed via a dedicated piping system to minimize the volume of storm water entering the sewer collection system and the WWTF. Additionally, the collection system does not have significant volumes of inflow and infiltration. Therefore, the loadings from storm water and inflow and infiltration to the WWTF are considered to be negligible.

The City of Visalia has performed sampling in residential and commercial areas to determine the expected loadings from these sources. This sampling data is contained in Appendix D. The loading from these sources is calculated by Equation 8.

Equation 8 – Residential and Background Loading Calculation

$$L_{unc} = (C_{unc}) * (Q_{unc}) * 8.34$$

Where:

L_{unc} = Uncontrolled loading, lb/day

C_{unc} = Uncontrolled pollutant concentration, mg/L

Q_{unc} = Uncontrolled flow rate, MGD

8.34 = Unit conversion factor

4.2 Septage Loadings

The City of Visalia WWTF accepts septage waste from licensed haulers. Since the septage haulers are not subject to local limits like industrial users, the loading the WWTF receives from septage haulers needs to be subtracted from the MAHLs when determining the loadings available for industrial users. The City of Visalia samples some septage discharges and records the volume of septage received. This septage hauler information is shown in Appendix E. Equation 9 is used to calculate the loading from septage haulers.

Equation 9 – Septage Loading Calculation

$$L_{sep} = (C_{sep}) * (Q_{sep}) * 8.34$$

Where:

L_{sep} = Septage loading, lb/day

C_{sep} = Septage pollutant concentration, mg/L

Q_{sep} = Septage flow rate, MGD

8.34 = Unit conversion factor

SECTION FOUR

4.3 Maximum Allowable Industrial Loadings

Maximum Allowable Industrial Loadings (MAILs) are the amount of pollutant loadings that the WWTF can receive from controlled sources (permitted industrial users). The MAIL for each pollutant is calculated by Equation 10.

Equation 10 – MAIL Calculation

$$\text{MAIL} = \text{MAHL} (1-\text{SF}) - (\text{L}_{\text{unc}} + \text{SW} + \text{GA})$$

Where:

MAIL = Maximum allowable industrial loading, lb/day

MAHL = Maximum allowable headworks loading, lb/day

SF = Safety factor, decimal

L_{unc} = Loadings from uncontrolled sources, lb/day

SW = Loadings from septage waste, lb/day

GA = Growth allowance, lb/day

4.3.1 Safety Factor and Growth Allowance

The safety factor is a percentage of the MAHL set aside to account for variability in the data analyzed and other uncertainties. The EPA recommends at least a 10 percent safety factor be used. For the purposes of this local limits study, a 10 percent safety factor will be used for all pollutants.

Growth allowance is a part of the MAHL that can be held reserve to allow for potential growth or expansion within the service area. The growth allowance is normally used for those pollutants that the WWTF was designed to remove, such as BOD, TSS, and ammonia. The City of Visalia does not know of any major growth or expansions to the wastewater collection system. However, five percent will be set aside to allow for any growth that may occur during the life of the local limits. Setting aside the five percent will allow some growth without the need to revise the local limits.

4.4 Local Limits Allocations

There are two common approaches to allocating the available MAIL to the significant industrial users. The two common methods are uniform allocation and Industrial User specific allocation. Different allocation methods can be used for each pollutant.

4.4.1 Uniform Allocation

The uniform allocation method yields one limit per pollutant that will apply to all SIUs. This allocation method requires that the MAIL for the pollutant be divided by the total flow from all SIUs, even those that do not discharge the pollutant. This method can be overly stringent because some IUs that do not discharge a pollutant will be given an allocation of the MAIL that they may not need. Equation 11 shows the method to calculate a local limit using the uniform allocation method.

SECTION FOUR**Equation 11 – Uniform Allocation Calculation**

$$C_{lim} = MAIL / [(Q_{siu}) * 8.34]$$

Where:

C_{lim} = Uniform concentration limit, mg/L

MAIL = Maximum allowable industrial loading, lb/day

Q_{siu} = Total flow rate from SIUs, MGD

8.34 = Unit conversion factor

4.4.2 IU Specific Allocation

There are two methods to divide the MAIL for each pollutant among only the SIUs that discharge that particular pollutant. These methods develop SIU-specific discharge limits. Any SIU that discharges at or below the background level is given a background allocation.

The SIU Contributory Flow method is similar to the Uniform Allocation method except that the portion of the MAILs above the background level is divided by the flow rate from those SIUs discharging the pollutant above background. Equation 12 shows the SIU Contributory Flow Allocation calculation.

Equation 12 – SIU Contributory Flow Allocation Calculation

$$C_{lim} = [MAIL - L_{back}] / [(Q_{siupol}) * 8.34]$$

Where:

C_{lim} = Uniform concentration limit, mg/L

MAIL = Maximum allowable industrial loading, lb/day

L_{back} = Background loading allocation for SIUs for which no contributory flow limit is being established for that pollutant, lb/day

Q_{siupol} = Total flow rate from SIUs discharging the pollutant, MGD

8.34 = Unit conversion factor

4.4.3 The Mass Proportion Allocation

The mass proportion allocation method allocates the MAIL to each SIU in proportion to the SIU's loading of that pollutant. To calculate the allowable loading for a SIU the portion of the MAIL above background is multiplied by the ratio of the current loading from SIU X to the current total loading of a pollutant from all SIUs. This calculation is shown in Equation 13.

Equation 14 shows the conversion of the mass allocation to a concentration.

SECTION FOUR**Equation 13 – Mass Proportion Allocation Calculation**

$$L_{allX} = [L_{currX} / L_{currT}] * [MAIL - L_{back}]$$

Where:

L_{allX} = Allowable loading allocated to SIU X, lb/day

L_{currX} = Current loading from SIU X, lb/day

MAIL = Maximum allowable industrial loading, lb/day

L_{back} = Background loading allocation for SIUs for which no contributory flow limit is being established for that pollutant, lb/day

Equation 14 – Mass Proportion Conversion to Concentration Limit

$$C_{limX} = L_{allX} / [(Q_X) * 8.34]$$

Where:

C_{limX} = Discharge limit for SIU X, mg/L

L_{allX} = Allowable loading allocated to SIU X, lb/day

Q_X = Flow rate from SIU X, MGD

8.34 = Unit conversion factor

4.5 Uniform Allocation of Local Limits

Table 4-2 is a summary of the collected information and the proposed local limits based on the uniform allocation method. The details of the calculations in Table 4-2 are shown in Appendix F.

SECTION FOUR

Local Discharge Limits Development

Table 4-2: Uniform Allocation of Local Limits

Pollutant	Maximum Allowable Headworks (MAHL - lbs/d)	Safety Factor (%) (SF)	Growth Allowance (%) (GA)	Nonindustrial Concentration (mg/l) (Cdom)	Nonindustrial Flow (MGD) (Qdom)	Nonindustrial Loading (lbs/day) (Ldom)	Hauled Waste Concentration (mg/l) (Chw)	Hauled Waste Flow (MGD) (Qhw)	Hauled Waste Loading (lbs/day) (Lhw)	Allowable Industrial Loading (MAIL - lbs/day)	Local Limit (mg/l) (Cind)	Basis of Limitation
Arsenic	1.3568	10	10	0.0012	9.887966	0.0998	0.1587	0.011434	0.0151	0.9705	0.0510	Sludge
Cadmium	0.0831	10	10	0.0001	9.887966	0.0058	0.0383	0.011434	0.0036	0.0571	0.0030	Water Quality
Chromium	133.1733	10	10	0.0033	9.887966	0.2730	0.2521	0.011434	0.0240	106.2416	5.5857	Sludge
Copper	7.9671	10	10	0.0320	9.887966	2.6389	4.2631	0.011434	0.4065	3.3282	0.1750	Water Quality
Cyanide	1.7039	10	10	0.0009	9.887966	0.0709	0.0000	0.011434	0.0000	1.2922	0.0679	Water Quality
Lead	0.8598	10	10	0.0014	9.887966	0.1130	0.5129	0.011434	0.0489	0.5259	0.0277	Water Quality
Mercury	0.1713	10	10	0.0000	9.887966	0.0004	0.0118	0.011434	0.0011	0.1355	0.0071	Sludge
Molybdenum	0.4931	10	10	0.0010	9.887966	0.0825	0.0805	0.011434	0.0077	0.3044	0.0160	Sludge
Nickel	8.4145	10	10	0.0037	9.887966	0.3059	0.2572	0.011434	0.0245	6.4011	0.3365	Water Quality
Selenium	0.8387	10	10	0.0006	9.887966	0.0495	0.0390	0.011434	0.0037	0.6178	0.0325	Sludge
Silver	10.2811	10	10	0.0001	9.887966	0.0049	0.0035	0.011434	0.0003	8.2196	0.4322	Inhibition
Zinc	33.8280	10	10	0.1678	9.887966	13.8386	28.7321	0.011434	2.7399	10.4839	0.5512	Sludge
Ammonia	3452.9292	10	10	28.4300	9.887966	2344.4980	890.0000	0.011434	84.8700	332.9753	17.5064	Inhibition
BOD	256354.5218	10	10	305.68	9.887966	25208.0957	-	0.011434	0.0000	179875.5217	9457.0764	Water Quality
TSS	226555.1037	10	10	299.5	9.887966	24698.4581	-	0.011434	0.0000	156545.6248	8230.4914	Water Quality
Boron	72.4485	10	10	0.24	9.887966	19.7918	0.0005	0.011434	0.0000	38.1670	2.0067	Water Quality
Chloride	10767.6072	10	10	56.26	9.887966	4639.5167	650.0000	0.011434	61.9837	3912.5853	205.7068	Water Quality
FOG	22573.6000	10	10	76.52	9.887966	6310.2705	1650.0000	0.011434	157.3433	11591.2662	609.4186	Water Quality

SECTION FOUR**4.6 IU Specific Allocation of Local Limits**

Based on the uniform allocation method, the proposed local limits for some pollutants are significantly lower than the existing local limits. These pollutants are: cadmium, copper, cyanide, lead, mercury, nickel, silver and zinc. The proposed local limits for these pollutants are also significantly lower than the concentrations seen in the discharge from the SIUs. Sampling data for the SIUs is in Appendix G.

The City currently imposes silver local limits for Josten's Printing and Publishing and Voltage Multipliers of 4.0 mg/L and 1.0 mg/L, respectively. The mass loading associated with these two SIUs was subtracted from the MAIL before it was distributed amongst the remaining silver contributing SIUs.

IU Specific Allocated local limits are meant to be applied to all industrial users regulated by the IPP. In order to provide additional protection, only 80% of the MAIL will be allocated via the IU Specific Allocation method. This will allow an additional amount of safety in the case where an industry that has not historically discharged a pollutant may discharge that pollutant above background concentrations.

Table 4-3 is a summary of the collected information and the proposed local limits based on the IU Specific Allocation method. Details of the IU Specific Allocation calculations are in Appendix H.

Table 4-3: IU Specific Allocation of Local Limits

Pollutant	MAIL (lb/day)	Uncontrolled Discharge Conc (mg/L)	Total IU flow below Uncontrolled Conc (MGD)	Lback (lb/day) [Unc Conc x IU flow below Unc Conc]	Total IU flow above Uncontrolled Conc (MGD)	IU Specific Allocation Local Limit (mg/L)
Cadmium	0.0571	0.0001	2.2166	0.00129	0.0643	0.08
Copper	3.3282	0.032	2.164	0.5775	0.1166	2.14
Cyanide	1.2922	0.0009	2.2773	0.0163	0.0033	36.97
Lead	0.5259	0.0014	2.182	0.0249	0.0986	0.48
Mercury	0.1355	4.76x10 ⁻⁶	1.9236	7.64x10 ⁻⁵	0.357	0.04
Nickel	6.4011	0.0037	2.171	0.067	0.1096	5.53
Silver	8.2196	0.0001	2.1763	0.0011	0.0563	12.40
Zinc	10.484	0.1678	2.211	3.0944	0.0696	9.12

SECTION FOUR**4.7 Comparison of Proposed and Existing Limits**

Table 4-4 shows a comparison of the proposed local limits to the existing local limits and calculated local limits. Existing local limits for boron and pentachloropenol have been eliminated. Proposed local limits that are greater than the existing local limits are recommended to remain at the existing local limit value to prevent any lessening of local limits. Table 4-4 shows the recommended local limits based upon this evaluation.

Table 4-4: Comparison of Existing and Proposed Local Limits

Pollutant	Existing Local Limit	Calculated Local Limit	Allocation Method	Proposed Local Limit
Arsenic	0.05 mg/L	0.05 mg/L	Uniform	0.05 mg/L
Boron	1.60 mg/L	Not needed		None
Cadmium	0.02 mg/L	0.08 mg/L	IU Specific	0.02 mg/L
Chromium	3.44 mg/L	5.59 mg/L	Uniform	3.44 mg/L
Copper	1.97 mg/L	2.14 mg/L	IU Specific	1.97 mg/L
Cyanide	0.16 mg/L	36.97 mg/L	IU Specific	0.16 mg/L
Lead	0.30 mg/L	0.48 mg/L	IU Specific	0.30 mg/L
Mercury	0.02 mg/L	0.04 mg/L	IU Specific	0.02 mg/L
Nickel	2.86 mg/L	5.53 mg/L	IU Specific	2.86 mg/L
Silver ¹	0.76 mg/L	12.40 mg/L	IU Specific	0.76 mg/L
Zinc	0.64 mg/L	9.12 mg/L	IU Specific	0.64 mg/L
Pentachlorophenol	0.15 mg/L	Not needed		None
Oil & Grease	200 mg/L	609 mg/L	Uniform	200 mg/L
BOD ₅	18,161 lb/day	89,538 lb/day ²	Not applicable	18,161 lb/day
TSS	41,633 lb/day	41,633 lb/day ²	Not applicable	41,633 lb/day
¹ Josten's Printing and Voltage Multipliers retain silver limits of 4.0 mg/L and 1.0 mg/L, respectively. ² Plant design capacity.				

4.8 Protection of the Treatment Works, Collection System, and Workers**4.8.1 Fume Toxicity**

There are certain pollutants that can cause a fire or explosion, corrosive structural damage at the treatment plant, obstruction of flow, inhibition of biological activity due to heat, or discharges that cause the formation of toxic gases, vapors, or fumes.

SECTION FOUR

Explosive and flammable pollutants discharged to a WWTF can threaten the integrity of the collection system and the health and safety of the workers. Under the right conditions, the accumulation of such pollutants in treatment works can produce explosions or fires. There are no POCs listed in Table 2-5 that are listed in the EPA Guidance Manual as being potentially explosive.

The fume toxicity level of a pollutant discharged to a WWTF indicates the likelihood that a WWTF worker will suffer an adverse health effect when the level is approached or exceeded. This level can be measured by the time weighted average threshold limit value (TWA-TLV), which is the concentration to which a worker can be exposed for eight hours per day, 40 hours per week and not have any acute or chronic adverse health effects. Similarly, short-term exposure limits (STELs) are concentrations to which a worker should not be exposed for longer than 15 minutes or more than four times per day (with at least one hour between each exposure).

There were three POCs identified in Table 2-4 that have fume toxicity exposure limits that indicate they may create a toxicity exposure issue for collection system workers. The three POCs were chloroform, ethylbenzene, and toluene. The fume toxicity discharge screening level can be calculated using Equation 15. The discharge screening level is the concentration in the treatment works above which a local limit may be necessary.

Equation 15 – Calculation of Discharge Screening Level

$$C_{\text{VI}} = C_{\text{vap}} / H$$

Where:

C_{VI} = Discharge screening level, mg/L

C_{vap} = Exposure limit at 1 atm and 25°C, mg/m³

H = Henry's Law Constant, (mg/m³)/(mg/L)

Table 4-5: Fume Toxicity Discharge Screening Levels

Pollutant	Exposure limit (mg/m ³)	Henry's Law Constant (mg/m ³)/(mg/L)	Discharge Screening Level (mg/L)	Maximum Concentration Sampled (mg/L)
Chloroform	9.76	163.5	0.06	0.028

SECTION FOUR**Local Discharge Limits Development**

Ethylbenzene	542.50	327.0	1.659	<0.0005
Toluene	565.50	272.5	2.075	0.0019

Based on the maximum concentrations sampled in the treatment works and the fume toxicity discharge screening levels, no local limits are needed for chloroform, ethylbenzene or toluene based upon the protection of the treatment works, collection system and workers.

4.8.2 Oil and Grease

Based on the uniform allocation of the oil and grease maximum allowable industrial loading, the local limit would be 669 mg/L. This local limit is based upon protecting the WWTFs ability to meet the WDR oil and grease limitation.

However, by its very nature, grease will adhere to many types of surfaces with sewers especially vulnerable to grease build-up. The cool internal surfaces of sewers provide ideal locations on which thin layers of grease can build up. Over a period of time, clumps of grease will build up to the point that the sewer can be completely choked. Grease also accumulates due to cooling and dilution of surfactants, that allows the grease to separate and collect on all sewer system surfaces, including wetwells at pump stations, where controls can become fouled and prevent pumps from operating properly.

Based on the residential (background loading) monitoring data, the average background oil and grease concentration is 76.5 mg/L. The average SIU concentration for oil and grease is 133 mg/L. The average oil and grease concentration into the WWTF is 57 mg/L.

The most commonly used local limit for oil & grease is 100 mg/L. The City currently has a limit of 200 mg/L. The 100 mg/L limit is not based upon any empirical evidence but rather on general correlations and an industry consensus that this level limits the build up of oil and grease in the collection system. The federal pretreatment regulations, 40 CFR 403.5(b)(6), prohibit “petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through.” In most municipalities, oil and grease limits of 100 mg/L to 300 mg/L are protective of the collection system. Limits may need to vary depending on different factors, such as the number of wet wells, type of sewers, slope of sewers, flow in sewers, maintenance of the sewers, and history of grease related clogs.

Based upon the concentrations of oil and grease from residential and industrial sources and the history of grease, the current local limit of 200 mg/L is protective of the collection system and should remain.

4.9 Public Participation

The EPA General Pretreatment Regulations encourages public participation by requiring public notices or hearings for local limits development. The City of Visalia must publish a notice (including a notice for a public hearing) in a newspaper of general

SECTION FOUR

circulation within the jurisdiction served by the WWTF. All comments regarding the proposed local limits as well as any request for a public hearing must be filed with the Approval Authority (the RWQCB) within 30 days. The Approval Authority is required to account for all comments received when deciding whether to approve or deny the proposed local limits. The decision is then provided to the City and other interested parties, and published in the newspaper. All comments received are made available to the public for inspection and copying.

The City should notify the existing SIUs and other interested parties, individually, of the proposed limits and announce a public comment period in the local newspaper. This public comment period can be open while the proposed limits are submitted to the Approval Authority for initial review. During the comment period, the public may present technical challenges to the rationale for a particular local limit.

4.10 Implementation

Upon approval from the RWQCB, the approved limits need to be added to the existing sewer use ordinance. Once integrated in the sewer use ordinance, the approved local limits can be included into the permits issued to the SIUs.

SECTION FIVE

5 BIBLIOGRAPHY/REFERENCES

United States. Environmental Protection Agency. Local Limits Development Guidance. Washington, D.C., July 2004.

APPENDIX A – WWTF Sampling Data

APPENDIX B – Bis (2-ethylhexyl) Phthalate Sampling Data

APPENDIX C – WWTF Biosolids Data

APPENDIX D – Residential Background Sampling Data

APPENDIX E – Septage Hauler Sampling Data

APPENDIX F – Local Limits Calculations (Uniform Allocation)