



Location: City Hall – Council Chambers  
Date: October 11, 2022  
Time: 6:00 PM

## City Council Meeting Agenda

Mayor Jason Beebe, Council Members Steve Uffelman, Janet Hutchison, Patricia Jungmann, Gail Merritt, Jeff Papke, Raymond Law and City Manager Steve Forrester  
**ATTEND TELEPHONICALLY BY CALLING 346-248-7799 Meeting ID: 947 5839 2608 Passcode: 123456**

### Call to Order

### Flag Salute

### Additions to Agenda

### Consent Agenda

1. Regular Meeting Brief 9-13-2022
2. Annual Liquor License Renewals

### Visitors, Appearances and Requests

### Council Presentations

### Council Business

3. Zone Text Amendment (Ordinance No. 1278) **(PUBLIC HEARING)** - Josh Smith

### Staff Reports and Requests

4. City Manager's Report - Steve Forrester
5. Chapter 51 -Update & Additional Edits Staff Report - Casey Kaiser/Josh Smith
6. Prineville Renewable Energy Project (PREP) Biomass Project Update - Eric Klann
7. DC Legislative Trip Update - Eric Klann

### Committee Reports

### Ordinances

### Resolutions

8. Resolution No 1538 - Approving Local Limits Report - Casey Kaiser

### Visitors, Appearances and Requests

### Adjourn

*Agenda items maybe added or removed as necessary after publication deadline*



**CITY OF PRINEVILLE**  
**Regular Meeting Brief**  
387 NE Third Street – Prineville, OR 97754  
541.447.5627 ph 541-447-5628 fax

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Full Meeting Recordings Available at:  
<http://cityofprineville.com/meetings/>

City Council Meeting Brief  
September 27, 2022

**Council Members Present:**

Steve Uffelman  
Jason Beebe  
Janet Hutchison  
Patricia Jungmann  
Gail Merritt  
Jeff Papke

**Council Members Absent**

Ray Law

**Additions to the Agenda**

None.

**Consent Agenda**

1. Regular Meeting Brief 9-13-2022
2. Annual Liquor License Renewals

**Councilor Merritt made a motion to approve consent agenda as presented. Motion seconded. No discussion on motion. Motion carried.**

**Visitors, Appearances and Requests**

No one came forward.

**Council Presentations**

There were no Council Presentations.

**Council Business**

3. **Industrial Pre-Treatment Plan (PUBLIC HEARING)** – Casey Kaiser

**Mayor Beebe opened the public hearing portion of the meeting.**

Casey Kaiser, Public Works Director/Senior Planner presented a power point and explained DEQ's requirement to hold a public hearing. This process was started a couple of years ago. This is a DEQ requirement for cities that have industrial uses that discharge a certain amount per day to our treatment facility which is the threshold that triggers us to have this program in place. It will also protect city facilities.

Mr. Kaiser went through the process to implement this program, who this will affect, and the local limit report.

Chapter 51 updates references to Chapter 53 and removes information from Chapter 51 which is now found in Chapter 53. Chapter 54 is the new Chapter. This establishes the process for implementing the program. Casey explained that we would come back with an ordinance adopting the changes and a resolution formally accepting the local limits report.

Jered Reid, City Attorney provided an overview of the legal process that will likely involve two ordinances, one amending chapters 51 & 53 and the other ordinance adopting the new chapter 54 as well as a resolution adopting the local limits report.

Councilor Hutchison stated that she had met with Josh Smith, Planning Director to answer her questions already.

Discussions continued regarding how much the largest user discharges. Mr. Klann, City Engineer stated that our largest discharger is about 300,000 gallons per day on a peak day and our system can handle 2.4 million per day with a current average of 1 million per day.

Further discussions included fees being based on estimated staff time and they are focused toward the highest users so that it does not affect the standard rate payers.

No one from the audience came forward. No written testimony was received and no one was on the phone.

There were no further questions or comments from the Council.

**Mayor Beebe closed the public hearing portion of the meeting.**

#### **4. Intent to Award Water Re-Use Project – Eric Klann**

Eric Klann, City Engineer presented the staff report. This is a project that is probably 12 years in the making and have been encouraging wastewater users to reuse. We are getting a little more serious about this as we move into the future to encourage re-using our wastewater for industrial purposes.

Mr. Klann talked about where the RFP was posted and the numerous amount of responses he had received to send the RFP to with only one submitted. When he questioned it, the reply was that they decided not to compete with Brown and Caldwell who would serve the city well with their experience. This will be set up by awarding all of the work from design to construction, but will

move forward when funds are available. It is expected that this will be split between the data centers, however it would be available for any industrial user that would want to go with this method. Overall, this is a great project and went through how it meets the city goals and is a wonderful story to tell by repurposing wastewater.

Discussions continued about how Brown and Caldwell had worked with the city before by condensing prior studies. Expectations regarding if a user commits 100 % to doing this and another user comes along would they pay into the pot? Mr. Klann explained that these are all the questions that will be ironed out during this process.

There were no further questions.

**Councilor Hutchison made motion to approve the intent to award the permitting, design and construction services described to Brown and Caldwell. Motion seconded. All in favor, motion carried.**

**Staff Reports and Requests:**

**5. City Manager’s Report– Steve Forrester**

Mr. Forrester presented Manager’s Report that highlighted each department’s activities.

The workshop/retreat has to be rescheduled.

There were no questions.

**Committee Reports**

Councilor Jungmann provided a NeighborImpact update announcing the Empty Bowls fund raising event and to hurry and get your tickets since they sell out quick.  
No other reports.

**Ordinances:**

None.

**Resolutions**

None.

**Visitors, Appearances and Requests:**

No one came forward.

**Adjourn**

**Councilor Papke made a motion to adjourn the meeting. Motion seconded. No discussion on motion. All in favor, motion carried.**

Meeting adjourned at 6:33 P.M.

**Motions and Outcomes:**

Motion:	Outcome	Beebe	Hutchison	Jungmann	Law	Merritt	Papke	Uffelmann
Consent Agenda	PASSED	Y	Y	Y	-	Y	Y	Y
Motion to approve the intent to award the permitting, design and construction services described to Brown and Caldwell.	PASSED	Y	Y	Y	-	Y	Y	Y
Adjourn Meeting	PASSED	Y	Y	Y	-	Y	Y	Y

Public Records Disclosure

Under the Oregon public records law, all meeting information, agenda packets, ordinances, resolutions, audio and meeting briefs are available at the following URL:

<https://www.cityofprineville.com/meetings> .

# Annual Liquor License Renewals

October 11, 2022

Ranchero Inc.

Sayulita Cuisine

Crossroads BBQ Pit

Mazatlan



# STAFF REPORT

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**MEETING DATE:** 10/11/2021      **PREPARED BY:** Joshua Smith

**SECTION:** Ordinance 1278 & 1279      **DEPARTMENT:** Planning  
(Public Hearing)

**CITY GOAL:** Position the City of the future

**SUBJECT:** AM-2022-100 for a Text amendments to the C4 zone, Comprehensive plan map change, and Zone map change.

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## REASON FOR CONSIDERATION:

An application for a zone change and text amendment to the land use code has been received and reviewed by staff and the Planning Commission in accordance with the City's land use code. Based on the applicant's submittal, corresponding staff report and hearing conducted on 9/20/2022, the Planning Commission has issued a signed recommendation of approval.

In the absence of an appeal or review initiated by Council, zone changes do not require an additional public hearing before Council. The Council may adopt the Planning Commission's decision with no further argument or testimony. However, the proposed text amendment does require a hearing. To simplify the process, the zone change and text amendments will be reviewed and presented together. However, if approved the changes will be adopted in two ordinances; one for the zone change and one for the text amendments.

## DOCUMENT OVERVIEW:

There is a healthy amount of criteria used to justify the zone change and text amendments. In an effort to not over burden the Council with excessive information and documentation, staff has included only the Planning Commission recommendation and proposed changes in your packet. With no opposition present at the Planning Commission hearing, staff felt the Planning Commission recommendation and presentation by staff at this hearing would suffice. If any member of the Council would prefer to read the full application, it is available by request. These documents include the staff report to the commission, the applicant's burden of proof, traffic study, concept plan and submitted comments.

Planning Commission Recommendation: This document provides background information with findings and recommendation from the Planning Commission.

Exhibit A "track changes": This document is part of the Planning Commission recommendation. It shows the recommended text amendments in "track changes".

Exhibit B zone maps: These document show how the comprehensive plan map and zone map would change if the proposed amendments were approved.





**City of Prineville**  
**DEPARTMENT OF PLANNING & COMMUNITY DEVELOPMENT**  
**PLANNING COMMISSION RECOMMENDATION**

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**File No.:** AM-2022-100

**Applicant:** Empire Construction & Development (Sally DeMoss)  
63026 Lower Meadow Drive #200  
Bend, OR 97701

**Owner:** Gary Bell  
24185 Skywagon Drive  
Bend, OR 97701

**Location/Zoning:** The subject property is located in the southwest corner of the intersection of Empire Drive and Tom McCall Road in Prineville. Also identified as lot 8 of the Tom McCall Industrial Park Subdivision, map/tax lot number 151522DD00500. The property is currently zoned Light Industrial (M1).

**Proposal/Purpose:** The Applicant is requesting approval of a comprehensive plan map amendment from Light Industrial to Outlying Commercial, a zone change from M1 to C4, and a text amendment to Sections 153.030, 153.037 and 153.053 of the City of Prineville Zoning Ordinance. The purpose of these amendments is to address the need for commercial services to serve the industrial area.

**Criteria:** ORS – 227 & 197, OARs – 660-009, 660-012, 660-015, City Comprehensive Plan, Development Code; Title XV: Land Usage Chapter 153 sections 153.037, 153.053, 153.230 – 153.236

**Notice to DLCD:** 8/05/2022

**Notice to Neighbors:** 8/15/2022

**Newspaper Notice:** Planning Commission Notice – 9/6/2022  
City Council Notice – 9/27/2022

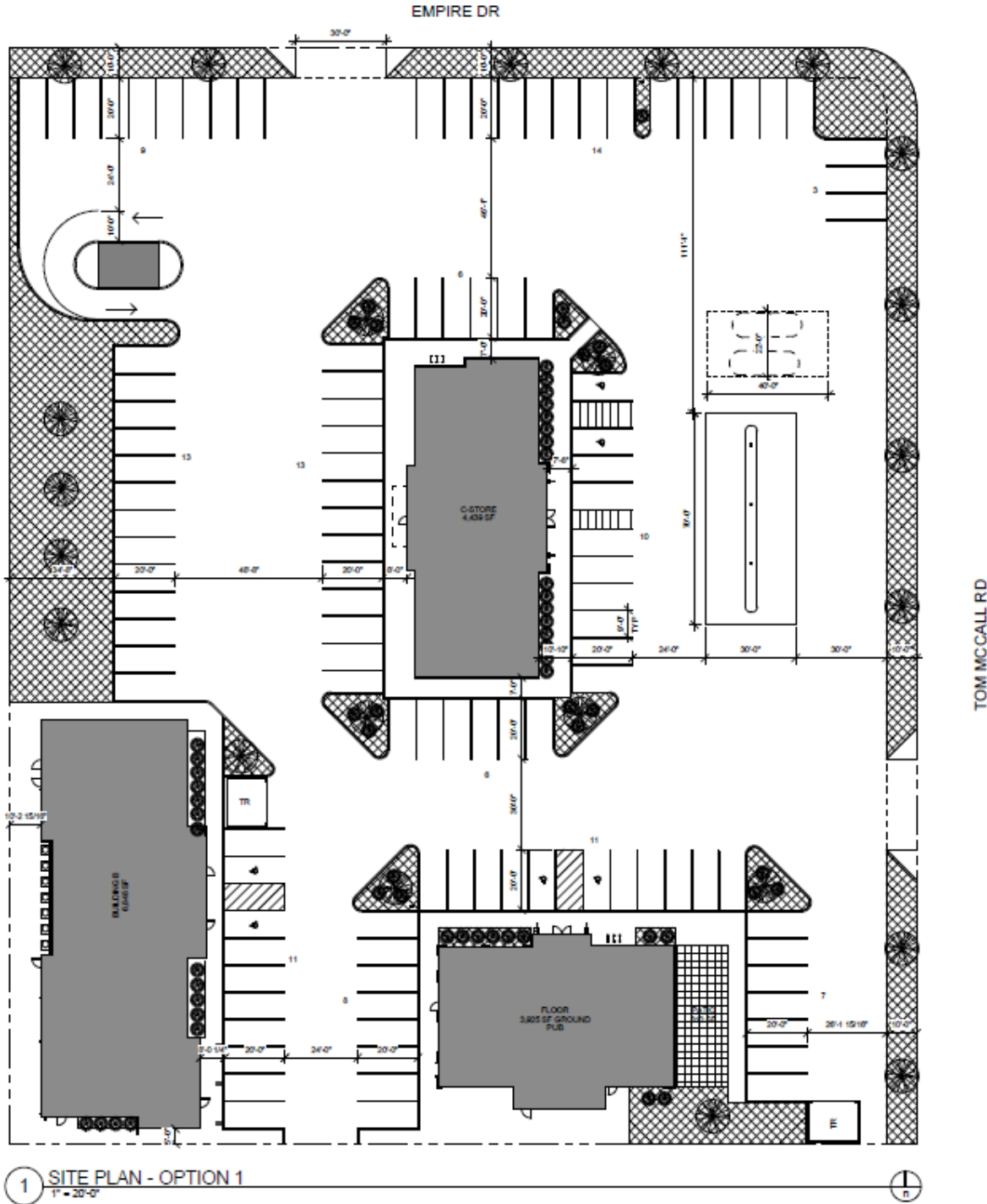
**Public Hearing:** Planning Commission – 9/20/2022  
City Council – 10/11/2022

**Background:**

Since the creation of the airport industrial area in 1995 and the subsequent UGB expansion of that area in 2004, the industrial area above the grade has been preserved for industrial purposes. In the past the City has resisted commercial re-zones in this area to prevent conflicting uses and diverting customers away from existing commercial zones on the valley floor. Some commercial services such as “truck stops with cafes” and “gas stations with convenience stores” are already allowed within the industrial zones; however, stand-alone eateries and retail uses are not. With the buildout of large data center facilities and other significant development within our industrial parks, the area has reached a critical mass that warrants some commercial services.

**Consistent with Statewide Planning Goals and City's Comprehensive Plan:**

The applicant submitted a consolidated application for a text amendment and Comprehensive plan and zone map amendment. The application included a burden of proof justifying the amendments and addressing applicable State Statutes, Oregon Administrative Rules (OARs) and the goals and objectives of the City's Comprehensive Plan. The application also included a full traffic study and a conceptual development plan that the amendments are based on as shown below. City planning staff presented a review of the applicant's proposal at the Planning Commission hearing and provided a staff report with additional analysis justifying the proposed amendments.



1 SITE PLAN - OPTION 1  
T = 20'-0"

AM-2022-100

Text amendment/zone change

**Planning Commission Conclusions and Recommendation**

The Planning Commission recognizes the need for some commercial services within the airport industrial area. The Commission concludes that the applicant along with analysis from City staff has shown enough justification to establish a convenience commercial zone as proposed. The Planning Commission agrees with staff that this type of zoning should not proliferate in the area without showing additional need and should be concentrated adjacent to arterial or major collector streets.

At the Planning Commission's September 20<sup>th</sup>, 2022 hearing, the Planning Commission voted 6 in favor with none opposed to recommend adoption of the code text amendments shown in Exhibit 'A' and the zone amendments as shown in Exhibit 'B' contingent upon the following conditions:

1. The zone change is contingent upon substantial development of the submitted concept plan. The City reserves the right to revert the zone back to Light Industrial (M1) should uses specific to the Convenience Commercial (C4) zone not materialize. Reversal would require a similar process with notice to the owner, a recommendation from the Planning Commission and City Council approval.
2. The site plan approval shall limit the proposed development to a trip cap of 1,027 weekday daily trips or 96 weekday p.m. peak hour trips based on the "worst-case" development potential in the current M1 zone.

**EXHIBITS**

Exhibit A - Text amendments

Exhibit B - Zone maps

Marty Bailey: *Marty Bailey* Date: 9-28-22  
Planning Commission Chair

**CHAPTER 153: LAND DEVELOPMENT CODE**  
**Update to the C4 zone.**

The three dots “...” represent text that is not being changed.

Table of contents shall be amended as follows:

...

**Specific Zone Requirements**

153.053 ~~Neighborhood~~ Convenience Commercial C4 Zone

...

Section 153.030 shall be amended as follows:

**153.030 CLASSIFICATION OF ZONES.**

...

Section	Zone Title	Abbreviated Designation
153.053	<del>Neighborhood</del> <u>Convenience</u>	Commercial C4

...

Section 153.037 shall be amended as follows:

**153.037 COMMERCIAL & INDUSTRIAL USE TABLE**

...

<u>Eating &amp; Drinking</u>	C1	C2	C3	C4	C5	M1	M2	IP	Comments:
Brew Pub, Tap House (with Restaurant)	0	0		<del>T1</del> <u>0</u>	0				May include Food Vendors

...

Café Restaurant, Espresso (Drive through)		0		<del>T2</del> <u>T1</u>	T1				
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...

<u>Automobile, Trucks, RV's</u>	C1	C2	C3	C4	C5	M1	M2	IP	Comments:
Auto Service Station (may include accessory convenience store & carwash)		0		<del>T1</del> <u>0</u>	T2	0	0	T1	Generally same day service, includes minor repairs.

...

<u>Office &amp; Office Products</u>	C1	C2	C3	C4	C5	M1	M2	IP	Comments:
Office and Office Products	0	0	0	<del>T2</del> <u>0</u>					Medical, attorney, real estate etc.

...

Office for real estate & Insurance	0	0	0	<del>T2</del> <u>0</u>	0				
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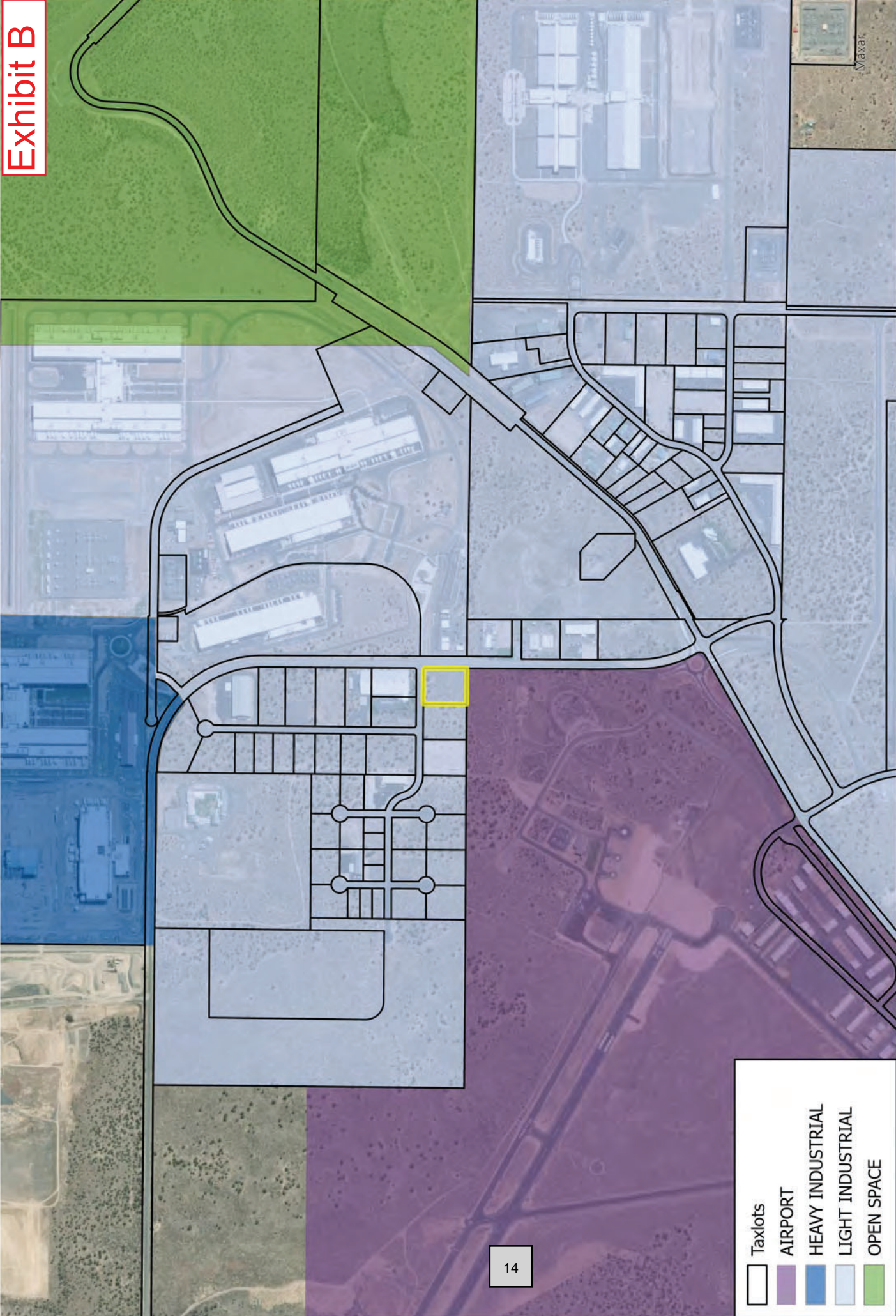
...

<u>Retail Uses</u>	C1	C2	C3	C4	C5	M1	M2	IP	Comments:
Hardware Store	0	0		<u>0</u>					

...

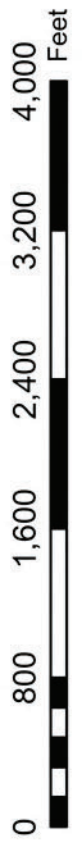






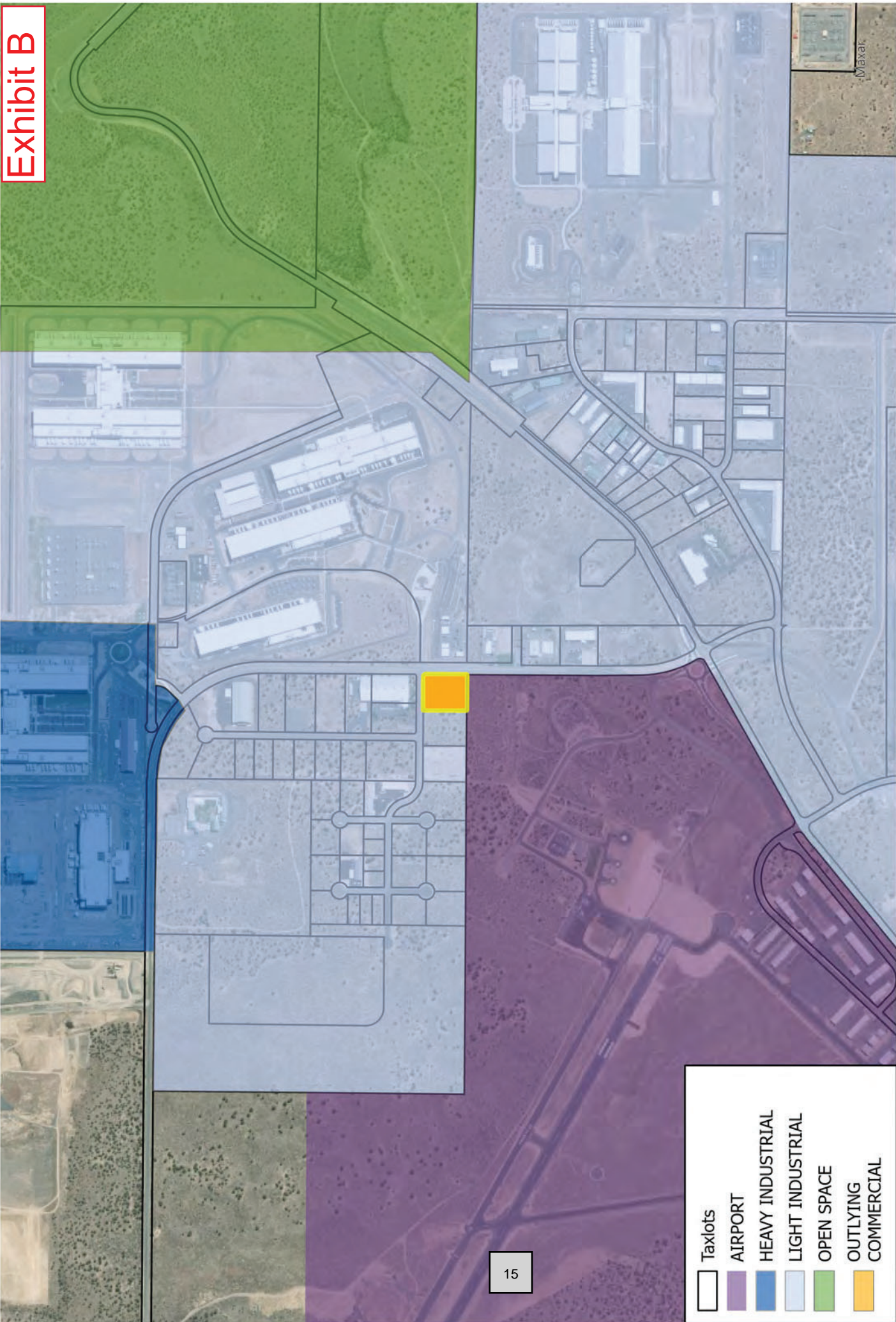
- Taxlots
- AIRPORT
- HEAVY INDUSTRIAL
- LIGHT INDUSTRIAL
- OPEN SPACE

2021 Aerial Date: 7/26/2022



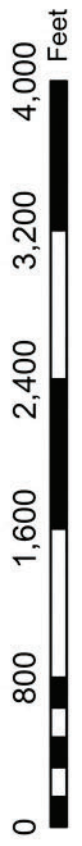
**AM-2022-100**  
**Current Comp Plan Designation**  
 Light Industrial





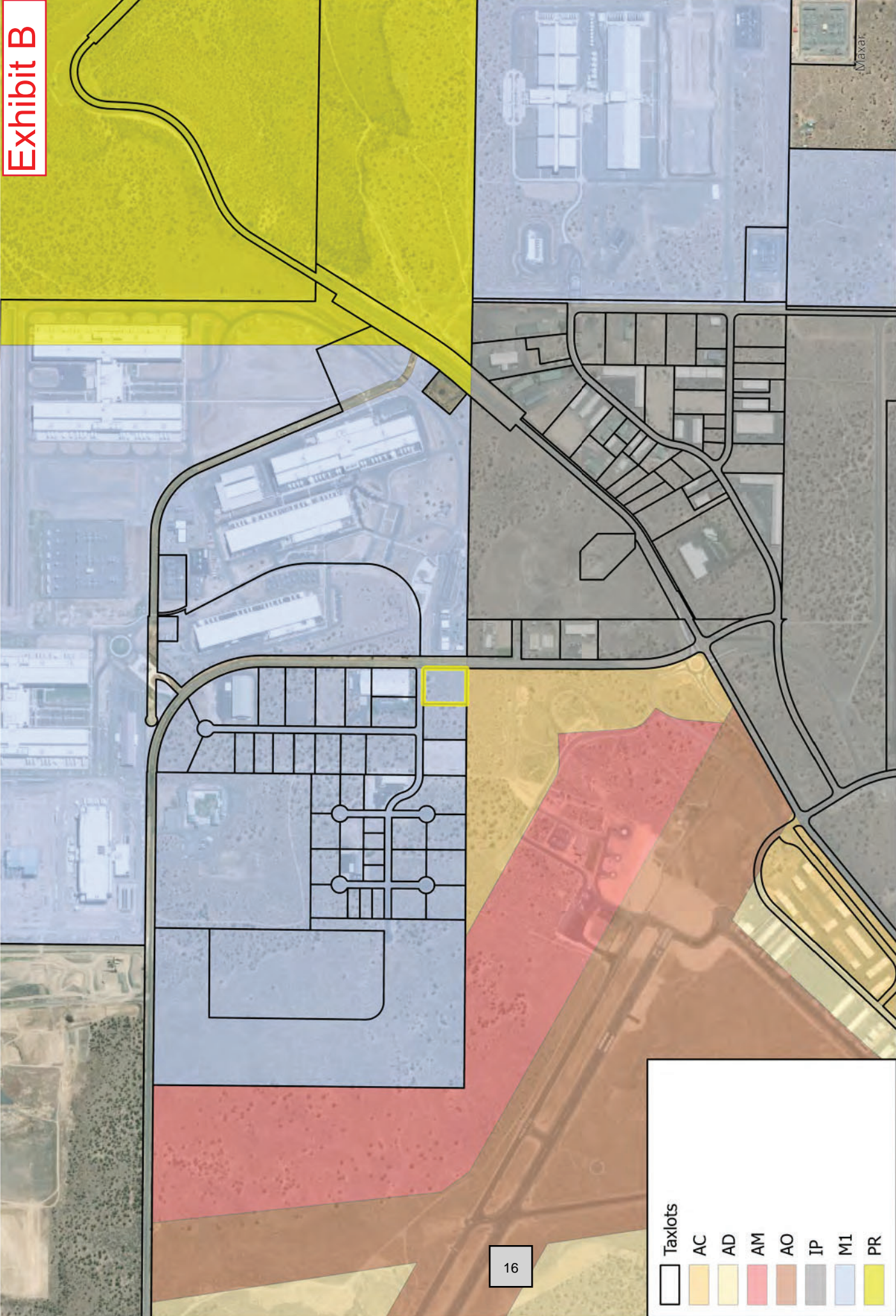
- Taxlots
- AIRPORT
- HEAVY INDUSTRIAL
- LIGHT INDUSTRIAL
- OPEN SPACE
- OUTLYING COMMERCIAL

2021 Aerial Date: 7/26/2022



**AM-2022-100**  
**Proposed Comp Plan**  
**(Outlying Commercial)**



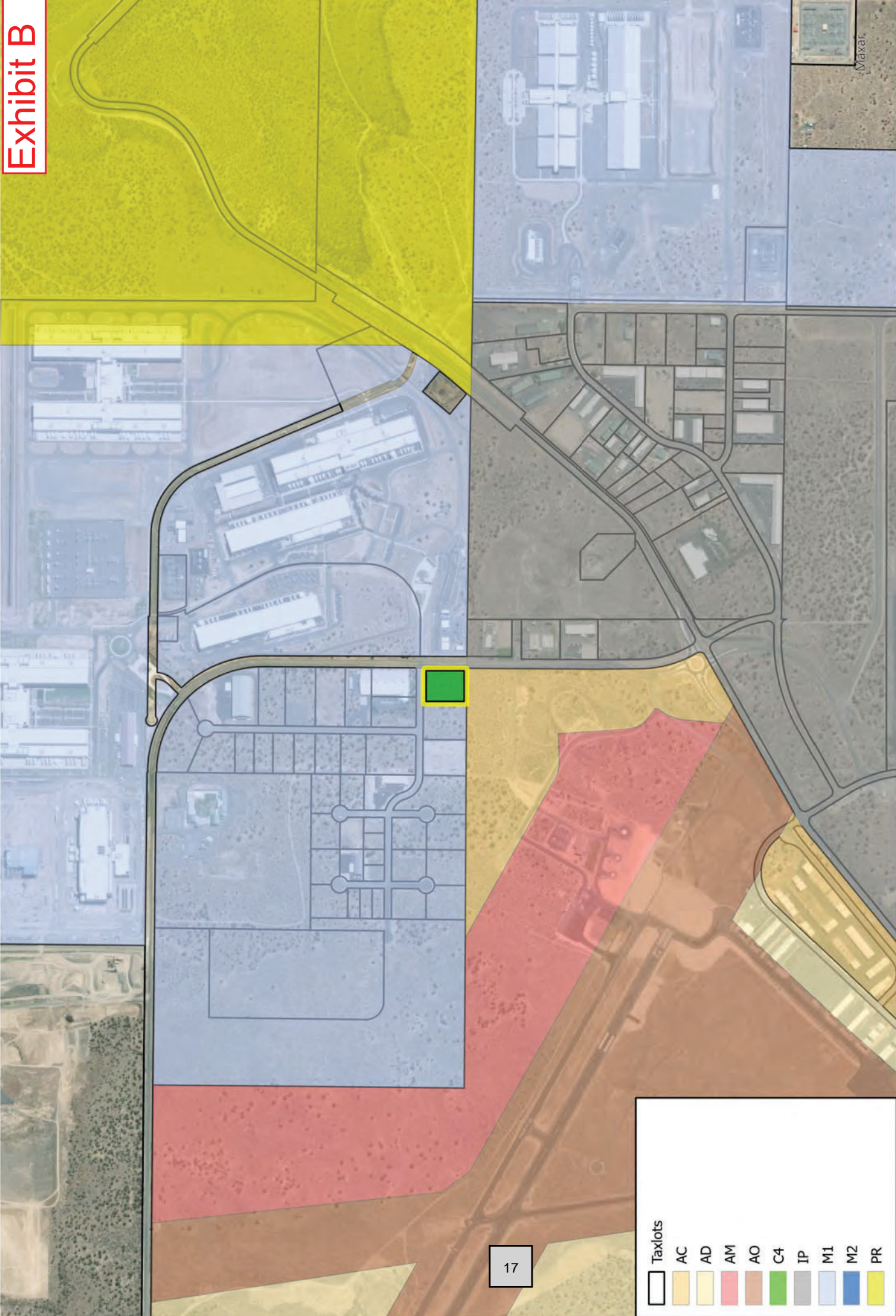


	Taxlots
	AC
	AD
	AM
	AO
	IP
	M1
	PR



**AM-2022-100**  
**Current Zone Designation**  
 M1- Light Industrial





2021 Aerial Date: 7/26/2022



	Taxlots
	AC
	AD
	AM
	AO
	C4
	IP
	M1
	M2
	PR

**AM-2022-100  
Proposed Zone C4**

## City Manager Update to Council

**Council Meeting October 11, 2022**

### **Public Safety / Dispatch**

The Police Department and Dispatch has their second recent lateral hire starting Monday the 10<sup>th</sup>. There is a third possible lateral hire currently in background that is looking promising. Dispatch also has a candidate in background and Sam McKenzie is at academy.

### **Public Works**

- Apple is planning on submitting their application for the next three buildings by the 14th of October.
- Continuing work with our data centers on planning and design of the infrastructure to continue to support their buildouts
- Continuing to progress on our Water System Master Plan and Wastewater Facility Master Plan. Anticipating starting our Transportation System Plan in November.

#### **In streets:**

- Completed NW 2<sup>nd</sup> St storm water line to alleviate the old Mill Race storm line large rain events (Taylor Northwest was the Contractor).
- New Archway is now powered, lighted and complete other than PPL removing their old light pole so city can install our new decorative light pole.
- Pulled new ODOT permits and moving forward with finishing roundabout art lighting.
- Street crew assisted Crook County in cleaning culverts that plugged completely shut in the last big rain event in the upper country. County has offered to purchase a \$4-5,000 dollar cleaning nozzle for City's Vector for us helping them.
- Streets working with paving companies to get costs for Meadow Lakes cart paths
- Prepping winter snow event equipment

#### **In water:**

- Taylor North West has completed new Deer St waterline from NW 3<sup>rd</sup> to 1<sup>st</sup> St.
- New 8" water main has been installed in Ochoco Ave. from Oregon to Jordan Streets. Now working on installing all of the services along that line. On track to be completed by 10/21
- Working on winterizing well houses and meter boxes
- Preparing for our ASR injection cycle. We are planning on injecting 130 million gallons into the aquifer this year. We still have 100 million gallons stored in the aquifer from last year's injection so we are planning on having 230 million gallons stored in the aquifer by the end of this injection cycle. The most we've ever had previously has been 130 million gallons at the end of last year's injection cycle.
- New 4<sup>th</sup> St well is now fully online and 100% operable

#### **At the treatment plant:**

- Gathering cost estimates to finalize the remaining CIP projects we will be able to complete within this biennial budget.
- Busy with pulling and winterizing the irrigation lines and equipment

## **Rail Road**

The Rail Road like many other departments is performing maintenance projects in preparation of winter.

## **Meadow Lakes Golf**

Meadow Lakes ended September with another record breaking month, plus a record 1<sup>st</sup> quarter high as well. The course was aerated a couple weeks ago and is healing nicely. The majority of leagues and events have wrapped up for the season, but is still busy with public play due to nice weather. As mentioned in the Public Works report, they are working on getting costs for the cart paths rehabilitation.

## **Airport**

The Bend Airport improvement project has been completed so it has taken back some of its traffic and activity. The Airport is preparing all equipment for winter. Activity and interest remain strong.

## **Planning**

It is starting to slow down a little in planning. DR Holton is still building new homes and the apartment development on Madras Highway is in the building permit process.

**Human Resources** – No Report.

**Information Technology** – No Report.

## **Finance**

The Finance Department is living and breathing audit right now.

**City Recorder/Risk Management** – No Update

**City Legal** – No Update

## **EDCO**

EDCO recently shared a national report that has Prineville listed as # 9 out of over 500 cities as a most dynamic micropolitan city in 2022. EDCO is working with a couple of businesses interested in Prineville. EDCO is also participating regionally to help get a direct Dallas flight at the Redmond airport.

## **Public Relations**

The summer activities at Barnes Butte Recreation Area (BBRA) was a success and you can expect to start seeing the photo contest winners rolling out on social media. The city will be making a video highlighting our Aquifer, Storage & Recovery (ASR) facility. There are a couple of press releases rolling out over the next couple weeks regarding all of the recent awards the city has earned. All very good stories to share.

## **Mayor/Council**

A doodle poll will be released very soon to reschedule the Council retreat/workshop that had to be cancelled. Staff will be meeting with a consultant who may help facilitate the follow through of the goals and plans discussed in the retreat.

## **Other**

Again a reminder that these events are coming up this week. If you plan on attending, please let us know so we can provide Meta with the names of those attending as soon as possible.

October 14<sup>th</sup> there will be a Work Force Training Program kick off. This will be a Chamber Perk event at Meta's Building H, No. 5, 6 at 8:00 A.M. Training will be focused on opportunities for construction, IT, health care and many other fields. For those who successfully complete the training, they are guaranteed a job after the program.

The Meta grants application cycle is now open for non-profits to apply.



# STAFF REPORT

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**MEETING DATE:** 10/11/2022      **PREPARED BY:** Planning/Finance

**SECTION:** Staff Reports and Requests      **DEPARTMENT:** Wastewater

**CITY GOAL:** Fiscal Responsibility, Provide Quality Municipal Service & Programs

**SUBJECT:** Chapter 51 Sewer

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**REASON FOR CONSIDERATION:**

The City Council recently reviewed updates to Chapters 51, 53 & 54 as part of the Industrial Pretreatment Program. These updates have not changed. In developing the exhibit for Chapter 51 it was discovered that other sections of this ordinance are out of date and in need of revision. The decision was made to incorporate these updates now rather than adopt this Chapter as previously presented, only too immediately beginning another update.

**BACKGROUND:**

Chapter 51 is how the City manages its sewer services, charges and billing within the Wastewater Department. The original Chapter 51 was adopted in 1992, when the golf course was being built and the internet was maybe a thing. The City has been managing new connections and charges through the City's "Standards and Specifications" and adopted fee schedule; however older connections are more difficult to manage. With new technologies and updates to software systems, Chapter 51 needs revisions to be effective. A similar chapter for the Water Department, "Chapter 52" will also need to be updated. Attached is a track-change version of Chapter 51 that retains the necessary updates for the pre-treatment program and adds the revisions needed to update the code to current practices. Additional revisions may be made after legal review, prior to final ordinance.

**FISCAL IMPACT:**

No significant fiscal impact is anticipated. Routine audits of the system may reveal discrepancies in how users are being charged, however; this tends to go both ways.

**RECOMMENDATION:**

City Staff recommends City Council direct staff to develop an Ordinance adopting updates to Chapters 51. The Ordinance will be brought back at the next Council meeting for its first presentation.



**Chapter 51  
SEWERS**

Sections:

**GENERAL PROVISIONS**

- 51.001 Adoption of Laws and Rules
- 51.002 Definitions

**PUBLIC SEWER USE REQUIRED**

- 51.015 Deposit of Objectionable Waste
- 51.016 Discharge of Untreated Waste
- 51.017 Privies and Cesspools
- 51.018 Connection to Public Sewer Required

**PRIVATE SEWAGE DISPOSAL**

- 51.030 Conflicting Provisions
- 51.031 Private Disposal Authorized
- 51.032 Permits and Waivers
- 51.033 Connection to Public Sewer Required
- 51.034 Operating Private Sewer Systems

**BUILDING SEWERS AND CONNECTIONS**

- 51.045 Permits
- 51.046 Fees, Charges, and Rates
- 51.047 Costs and Expenses
- 51.048 Separate Building Sewers
- 51.049 Use of Old Sewers
- 51.050 Construction Standards
- 51.051 Surface Runoff
- 51.052 STEP Systems
- 51.053 Excavation Regulations
- 51.054 Inspection and Connection

**PUBLIC SEWER USE REGULATIONS**

- 51.070 [Use of Public Sewers](#) ~~Storm and Industrial Cooling Water~~
- ~~51.071 Prohibited Discharges~~
- ~~51.072 Prohibited Potential Harmful Discharges~~
- ~~51.073 Pretreatment Facilities Maintenance~~
- ~~51.074 Intereceptors~~
- ~~51.075 Industrial Wastes~~
- ~~51.076 Control Manholes; Sampling Devices~~
- ~~51.077 Sampling Standards~~
- ~~51.078 Special Agreements~~

## INFILTRATION AND INFLOW

51.085	Notice to Correct
51.086	Time Limit for Corrective Action
51.087	Notice of Corrective Action Taken
51.088	Failure to Correct

## SERVICES; CHARGES AND BILLING

51.100	Definitions
51.101	Service
51.102	Charges
51.103	Billing, Payment, and Collection
51.104	Delinquent Accounts
51.105	Sewer Fund
51.115	Property Damage and Interference
51.116	Dangerous or Unsafe Apparatus
51.130	Disconnection Due to Noncompliance
51.131	Inspections: Right of Entry
51.998	Violations
51.999	Penalty

Cross-reference: Reimbursement districts for public improvements, see Chapter 39.

## GENERAL PROVISIONS

### 51.001 ADOPTION OF LAWS AND RULES.

The city adopts and incorporates herein by reference the following as they presently exist or may hereinafter be amended: O.R.S. 447.010 through 447.140, the State Plumbing Code and applicable administrative rules of the Director of Commerce.

(Ord. 981, passed 1-28-92)

### 51.002 DEFINITIONS.

For the purpose of this chapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

**APPLICANT.** The person(s) applying for a sewer connection permit. The applicant shall be the owner of the premises to be served by the sewer for which a permit is requested, or his/her designated agent authorized in writing to act on his/her behalf.

**BOD (BIOCHEMICAL OXYGEN DEMAND).** The quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure in five days at 20°C, expressed in milligrams per liter.

**BUILDING.** Any structure used for human habitation, employment, place of business, recreation, or any other purpose, containing sanitary facilities.

**BUILDING DRAIN.** That part of the lowest horizontal piping of a building drainage system which receives the discharge from soil, waste, and other drainage pipes within or adjoining the building or structure and conveys the discharge to the building sewer, beginning at a point five feet outside the established line of the building structure including any structural projection except eaves.

**BUILDING SEWER.** The extension from the building drain to the public sewer or other points of disposal.

**CLEANOUT.** A sealed aperture permitting access to the building sewer pipe for stoppage removal and other cleaning purposes.

**COLLECTION SYSTEM.** The system of public and private sewers which are operated by the city and are designed for the collection and conveyance of sanitary sewage.

**DWELLING UNIT.** A ~~facility~~ structure, or portion thereof, consisting of one or more rooms designed for permanent or semi-permanent occupancy which at a minimum provides the occupants with ~~minimum~~ a kitchen, sleeping and sanitary facilities.

~~**FIXTURE UNIT.** Fixture unit load values for drainage piping as specified in this chapter, or if not included herein, then as specified in the following or as it may hereinafter be amended. O.R.S. 447.010 through 447.140, the State Plumbing Code and Administrative Rules of the Director of Commerce adopted pursuant to O.R.S. 447.020.~~

**GARBAGE.** Solid wastes from the domestic and commercial preparation, cooking, and dispensing of food, and from the handling, storage and sale of produce.

**INDUSTRIAL WASTES.** Any liquid, gaseous, radioactive or solid waste substance, or a combination thereof resulting from any process of industry, manufacturing, trade or business or from the development or recovery of any natural resources as distinct from sanitary sewage.

**NATURAL OUTLET.** Any outlet into a watercourse, pond, ditch, lake or other body of surface or ground water.

**OWNER OF RECORD.** Shall mean the person(s) or legal entity owning property as shown on the last available complete County tax assessment rolls or deed records. "Property owner" or "owner" shall be equivalent terms for "owner of record".

**PERSON.** Any individual, firm, company, association, society, corporation or group.

**pH.** The logarithm of the reciprocal of the weight of hydrogen ions in grams per liter of solution.

**PROPERLY SHREDDED GARBAGE.** The wastes from the preparation, cooking and ~~the~~ dispensing of food, and the handling, storage and sale of produce, that have been shredded to a degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater than one-half inch (1.27 centimeters) in any dimension.

**PUBLIC SEWER.** A sewer in which all owners of abutting properties have equal rights; ~~and that~~ is owned and controlled by the city. This includes the system from the point of connection of the building drain and/or building sewer to a septic tank effluent pumping (STEP) system to the sanitary sewer collection system and the ultimate sewage treatment process.



**PUBLIC WORKS DIRECTOR.** The Public Works Director of the city, or his/her authorized deputy, agent, or representative.

**SANITARY SEWER.** A pipe or conduit intended to carry liquid and water-carried wastes, from residences, commercial buildings, industrial plants and institutions together with minor quantities of ground, storm and surface waters that are not intentionally admitted into the system.

**SERVICE CONNECTION.** That part of the public sewer which extends from the main line in a street, alley or public easement-sewer and receives flow from a building sewer or a building drain and which may or may not include a STEP system.

**SEWAGE.** A combination of water-carried wastes, from residences, commercial buildings, industrial establishments and institutions or other places, together with minor quantities of ground, storm and surface waters that are not intentionally admitted into the sewer system.

**SEWAGE TREATMENT PLANT.** Any arrangement of devices and structures used in the process of treating sewage.

**SEWAGE WORKS.** All facilities for collecting, pumping, treating and disposing of sewage.

**SHALL** is mandatory; **MAY** is permissive.

**SLUG.** Any discharge of water, sewage or industrial waste which in concentration of any given constituent or in quantity of flow exceeds for any period of duration longer than 15 minutes more than five times the average 24-hour sewage concentration or flows during normal operation.

**STEP SYSTEM.** A septic tank effluent pump system designed for a specific user application which is owned, operated and maintained privately or by the city. It is required as a condition for service to pretreat sewage and pressurize the resulting effluent for delivery to a street sewer in areas where gravity sewer is not possible or the street sewer is a pressure sewer designed for septic tank effluent. ~~If the system is installed on private property, an easement to the city which allows access must be given by the property owner.~~

**STORM SEWER** or **STORM DRAIN.** A sewer designated to carry only storm waters, surface run-off, drainage and street wash waters, but excludes sewage and industrial wastes, other than unpolluted cooling water.

~~**SUPERINTENDENT.** The Superintendent of Sewage Works of the city, or his/her authorized deputy, agent or representative.~~

**SUSPENDED SOLIDS.** Solids that either float on the surface of, or are in suspension in, water, sewage or other liquids, and which are removable by laboratory filtering.

**WATERCOURSE.** A channel in which a flow of water occurs, either continuously or intermittently.

(Ord. 981, passed 1-28-92)

## PUBLIC SEWER USE REQUIRED

### 51.015 DEPOSIT OF OBJECTIONABLE WASTE.

It shall be unlawful for any person to place, deposit or permit to be deposited in any unsanitary manner on public or private property within the city, or in any area under the jurisdiction of the city, any human or animal excrement, sewage, garbage or other objectionable waste.

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

### 51.016 DISCHARGE OF UNTREATED WASTE.

It shall be unlawful to discharge to any natural outlet within the city, or in any area under the jurisdiction of the city, any sewage or other polluted waters, except where suitable treatment has been provided in accordance with subsequent provisions of this chapter [and applicable City Ordinance](#).

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

### 51.017 PRIVIES AND CESSPOOLS.

Except as hereinafter provided, it shall be unlawful to construct or maintain any privy vault, septic tank, cesspool or any other facilities intended or used for the disposal of sewage.

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

### 51.018 CONNECTION TO PUBLIC SEWER REQUIRED.

The owner of all [property](#), buildings or dwelling units used for human occupancy, employment, recreation or any other purpose situated within the city [that needs or requires sewer service by law, shall connect to the public sewer system and abutting on any street, alley or right of way in which there is now located a public sanitary sewer of the city is required at their expense, unless waived in writing by the city with the waiver period not exceeding five years, to connect to the public sewer](#) in accordance with the provisions of this chapter, [the City's Standards and Specifications, The City's Land use code and any other applicable City Ordinance. If the public sewer system is not available within the abutting street, alley or through public easement, the public sewer may need to be extended at the owner's expense. within 90 days provided that the public sewer is within 100 feet of the property line.](#)

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

## PRIVATE SEWAGE DISPOSAL

### 51.030 CONFLICTING PROVISIONS.

No statement contained in this subchapter shall be construed to interfere with any current or to-be-published requirements that may be imposed by the Oregon State Department of Environmental Quality.

(Ord. 981, passed 1-28-92)

### **51.031 PRIVATE DISPOSAL AUTHORIZED.**

Where a public sanitary sewer connection is not available or required by this chapter or any other provision of the City, County or State law, a private sewage disposal system may be authorized in accordance with the local authority and state law. ~~under the provisions of §§ 51.015 through 51.018, the building sewer shall be connected to a private sewage disposal system which is in compliance with the provisions of this subchapter.~~

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

### **51.032 PERMITS AND WAIVERS.**

Before construction is commenced relative to a private sewage disposal system, the property owner must obtain a written waiver from the city concerning the current availability of the city sewer system or written permission to construct a private sewage disposal system. Secondly, the property owner shall obtain a written permit from the local authority for such systems and/or Oregon State Department of Environmental Quality (DEQ) relating to the construction and use of a private sewage disposal system.

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

### **51.033 CONNECTION TO PUBLIC SEWER REQUIRED.**

A property or building with an existing private sanitary sewer system that is within 100 feet of a public sewer system or other distance prescribed by DEQ, shall connect to that system upon failure of a private sanitary sewer system. Failure of a private sanitary sewer system shall be determined by the local authority for such systems and/or DEQ. ~~At such time as the public sewer becomes available to any property served by a private sewage disposal system, as provided for in §§ 51.015 through 51.018 of this chapter, a direct connection shall, unless waived in writing by the city with such waiver period not exceeding five years, be made to the public sewer.~~ Any connections made to the public sewer shall be made in compliance with this chapter, and any other applicable City Ordinance. ~~a~~Any septic tank, cesspools or other similar private sewage disposal facilities shall be abandoned ~~by the~~ at the property owner's expense, in accordance with ~~then~~ the local authority and existing state law, ~~and at no expense to the city.~~

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

### **51.034 OPERATING PRIVATE SEWER SYSTEMS.**

The property owner shall be required to operate and maintain the private sewage disposal system facilities in a sanitary manner at all times and at no expense to the city.

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

## BUILDING SEWERS AND CONNECTIONS

### 51.045 PERMITS.

(A) *Authority to open into, make connections or cover.* No unauthorized person shall uncover, make any connections with or opening into, use, alter or disturb any public sewer or appurtenance thereof without first obtaining a written permit from the city. Applications for permits shall be made at the City Hall.

(B) *Before permit issuance.* Before the applicant can be issued a permit, the applicant must pay the connection fee and inspection fee for the installation of the public sewer system connection. Once issued, each permit shall be valid for 60 days from the date of issuance.

(C) *Classes of connection permits.* There shall be three classes of building service connection permits: for residential services, for commercial service, and for service to establishments producing industrial wastes. In any case, the applicant shall make application on a special form furnished by the city. The permit application shall be supplemented by a site plan or other information considered pertinent in the judgement of the ~~Superintendent~~ Public Works Director. The specific permit and inspection fees for each class of building service connection permits, which are to be paid at the time the application is filed, are set out under a separate city ordinance.

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

### 51.046 FEES, CHARGES AND RATES.

All permit fees, inspection fees, installation charges, connections fees and user rates for the city shall be set by separate Council resolution ~~and resulting city ordinance~~.

(Ord. 981, passed 1-28-92)

### 51.047 COSTS AND EXPENSES.

All costs and expenses incident to the associated extension of the public sewer, and the ultimate installation and connection of the building sewer to the public sewer shall be borne by the property owner; and shall be in accordance with city standards. The property owner shall indemnify the city from any loss or damage that may directly or indirectly be occasioned by the installation of the building sewer. If the city is requested to make the connection to the applicant's building drain or building sewer, the costs shall include engineering, construction management, excavation, installation, materials, backfill, street repair and related overheads. Before construction commences the applicant shall ~~place on~~ deposit with the city the necessary funds, or security acceptable to the city, as estimated by the city, for the completion of the extension of the public sewer, including the estimated cost of a STEP system when required. Within 30 days after completion of the project the property owner will pay or the city will return to the property owner any difference in the actual cost of the project and the estimated cost for which the deposit was made.

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

## 51.048 SEPARATE BUILDING SEWERS.

(A) A separate and independent building sewer shall be provided for each individual building. Each building on the same property may collect into a single larger service for connection to the public sewer.

(B) Each separate and independent building shall pay all applicable fees associated with connecting to the public sewer system. These fees may include System Development Charges (SDCs), connection fees and inspection fees.

~~(A) A separate and independent building sewer shall be provided for every building; except in the following situations:-~~

~~(1) Where one building stands at the rear of another on an interior lot and no private or public sewer is available or can be constructed to the rear building through an adjoining alley, court, yard or driveway, the building sewer from the front building may be extended to the rear building and the whole considered as one building sewer.~~

~~(2) Where required, two or more buildings on one tax lot under one ownership can share a single STEP system provided that such is approved in writing by the city and that the STEP system utilized is sized appropriately.~~

~~(B) In each of the exceptions mentioned in division (A), each separate and independent building shall pay the applicable connection and inspection fees and specified monthly users charges.~~

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

## 51.049 USE OF OLD SEWERS.

Old sewers may be used in connection with new buildings only when they are found, with proper examination and testing by the city and/or its ~~Sewer Works Superintendent~~Public Works Director, to meet all requirements of this chapter and City standards and specifications.

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

## 51.050 CONSTRUCTION STANDARDS.

(A) *Sewer construction standards.*

(1) The size, slope, alignment, and materials of construction of a building sewer and the methods to be used in excavating, placing of pipe, jointing, testing, backfilling the trench and the connection to the public sewer, including a STEP system where applicable, shall all conform to the City's standards and specifications, requirements of any ~~city-applicable~~ building code, the State Plumbing Code and the Administrative Rules of the Director of Commerce, and other applicable rules, regulations and resolutions of the city, as they presently exist, or may hereinafter be amended or enacted.

(2) All ultimate connections to the public sewer, including a STEP system where applicable, shall be made gastight and watertight. Any deviations from the prescribed procedures and materials must be approved by the city's ~~Sewer Superintendent~~Public Works Director before installation.

(B) *Building drain connection elevation.* Whenever possible, the building sewer shall be brought to the building at an elevation below the basement floor. In all buildings in which the building drain is too low to permit gravity flow to the public sewer, the sanitary sewage carried by the building drain shall be lifted by a means approved by building code ~~the Sewer Superintendent~~ and discharged to the building sewer. This lift system shall be designed, constructed, maintained, owned, and operated by the building owner.

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

## 51.051 SURFACE RUNOFF.

No person shall make connection of roof downspouts, exterior foundation drains, areaway drains or other sources of surface runoff or groundwater to a building sewer or building drain which in turn is connected directly or indirectly to a public sanitary sewer, unless expressly allowed by the City.

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

## 51.052 STEP SYSTEMS.

Specific STEP system installation requirements, are as follows:-

(A) ~~*Permits Ownership.* A STEP system may be privately or publicly owned as required by the City. If publicly owned, a dedication of property or an easement to access, operate and maintain the system shall be given to the City prior to use of the public sewer. The pressure pipelines located in public rights-of-way, shall be owned and operated by the city. Where a STEP system is required, an easement to construct, operate and maintain the system shall be given to the city prior to the city's issuance of the requested permit.~~

(B) ~~*Notice of installation connection.*~~ The applicant for the STEP system construction shall notify the ~~Sewer Superintendent~~ Public Works Director at least two weeks prior to the need for the sewer application in order for the city to arrange for ~~the installation connection to the public sewer.~~

(C) *Installation specifications.* The materials, excavation and installation of the STEP system shall be in accordance with the plans and specifications of the city, whether it is publicly or privately owned. As such, individual electrical and pump needs will have to be determined for each individual service connection.

(D) ~~*Operation and Maintenance*~~ ~~Electrical power.~~ STEP systems shall be owned maintained and operated by the property owner or owners. Electrical power for the STEP system shall be arranged and ~~be~~ provided by the applicant. Suitable electrical rough-in, consistent with applicable city and state electrical codes, for the structure(s) to be served is a condition for the connection of service to the sewer system. Rough-in, as well as other electrical costs, is the responsibility of the applicant. All installation, operation, and maintenance costs shall be paid for by the applicant. Installation of a STEP system shall not be done in an attempt to limit monthly sewer charges.

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

## 51.053 EXCAVATION REGULATIONS.

(A) *Restoration of public property.* All streets, sidewalks, parkways and any other public property disturbed in the course of the service connection installation shall be restored in a manner satisfactory to the city. All repairs or replacements shall be made at the expense of the property owner.

(B) *Safety measures.* All excavation for building sewer installation shall be adequately guarded with barricades and lights ~~so as~~ in order to protect the public from hazard. The type of safety measures relied upon will be conducted in a manner satisfactory to the city. Construction safety shall be the ultimate responsibility of the installation contractor.

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

## 51.054 INSPECTION AND CONNECTION.

The applicant for the building sewer permit shall notify the ~~Sewer System Works Superintendent~~ Public Works Director when the building sewer installation is ready for inspection and connection to the public sewer. The connection shall be made under the supervision of the ~~Superintendent~~ Public Works Director or a designated representative. No cover shall be added until the proper level of inspection and connection related supervision has been conducted.

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

### PUBLIC SEWER USE REGULATIONS

## ~~51.070 STORM AND INDUSTRIAL COOLING WATER.~~

~~Storm water and all other unpolluted drainage shall be discharged to such sewers as are specifically designed as storm sewers, or to a natural outlet approved by the Superintendent. Industrial cooling waters or unpolluted process waters may also be discharged, on approval of the Superintendent and/or the Department of Environmental Quality, to a storm sewer or other natural outlets.~~

~~(Ord. 981, passed 1-28-92) Penalty, see § 51.999~~

## ~~51.0701 PROHIBITED DISCHARGES~~ USE OF PUBLIC SEWERS.

(A) No person shall discharge or cause to be discharged into a sanitary sewer the following described substances, materials, waters or wastes if it appears likely, in the opinion of the Public Works Director and/or the Department of Environmental Quality, that the wastes can harm either the sewers, sewage treatment process, or equipment, have an adverse effect on the receiving stream or can otherwise endanger life, limb, public property, or constitute a nuisance. In forming his/her opinion as to the acceptability of these wastes, the Public Works Director will give consideration to such factors as the quantities of subject wastes in relation to flows and velocities in the sewers, materials of construction of the sewers, nature of the sewage treatment process, capacity of the sewage treatment plant, degree of treatability of wastes in the sewage treatment plant, and other pertinent factors. Refer to Prineville Administrative Code section 53.125 for additional guidance on prohibited discharges.



(B) Waste rejection, discharge control, or pretreatment.

(1) If any waters or wastes are discharged, or are proposed to be discharged to the public sewers, which contain the substances or possess the characteristics in division (A) of this section, and which in the judgement of the Public Works Director, may have a deleterious effect upon the sewage works, processes, equipment or irrigation lands and/or receiving waters, or which otherwise create a hazard to life or constitute a public nuisance, the Public Works Director may do the following:

(a) Reject the wastes.

(b) Require pretreatment to an acceptable condition as a requirement for discharge to the public sewers.

(c) Require control over the quantities and rates of discharge.

(d) Require additional payment to cover the added cost of handling and treating the wastes not covered by existing taxes or sewer charges under section 51.078.

(2) If the Public Works Director permits the pretreatment or equalization of waste flows, the design and installation of the facilities and equipment shall be subject to the review and approval of the Public Works Director, and subject to the requirements of all applicable codes, ordinances and laws.

~~No person shall discharge or cause to be discharged any of the following described waters or wastes to any sanitary sewer.~~

~~(A) Any storm water, surface water, ground water, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process waters.~~

~~(B) Any gasoline, benzene, naphtha, fuel oil or other flammable or explosive liquid, solid or gas.~~

~~(C) Any waters or wastes containing toxic or poisonous solids, liquids or gases in sufficient quantity, either singularly or by interaction with other wastes, to injure or interfere with any sewage treatment process, constitute a hazard to humans or animals, create a public nuisance or create any hazard in the receiving waters of the sewage treatment plant, including but not limited to cyanides in excess of two mg/L as CN in the wastes as discharged to the public sewer.~~

~~(D) Any water or wastes having a pH lower than 5.5 or having any other corrosive property capable of causing damage or hazard to structures, equipment or personnel of the sewer works.~~

~~(E) Solid or viscous substances in quantities or of such other interference with the proper operation of the sewage works such as, but not limited to, ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, unground garbage, whole blood, paunch, manure, hair and fleshings, entrails and paper dishes, cups, milk containers and the like, either whole or ground by garbage grinders.~~

~~(F) Any septic tank or cesspool sludge or wastes disposals, which are planned for direct disposal into the sewage treatment facilities.~~

~~(G) Any other substance prohibited by the Department of Environmental Quality of the State of Oregon.~~

~~(Ord. 981, passed 1-28-92) Penalty, see § 51.999~~



## **51.072 PROHIBITED POTENTIAL HARMFUL DISCHARGES.**

(A) *Prohibited potential harmful discharges.* No person shall discharge or cause to be discharged into a sanitary sewer the following described substances, materials, waters or wastes if it appears likely, in the opinion of the Superintendent and/or the Department of Environmental Quality, that the wastes can harm either the sewers, sewage treatment process or equipment, have an adverse effect on the receiving stream or can otherwise endanger life, limb, public property or constitute a nuisance. In forming his/her opinion as to the acceptability of these wastes, the Superintendent will give consideration to such factors as the quantities of subject wastes in relation to flows and velocities in the sewers, materials of construction of the sewers, nature of the sewage treatment process, capacity of the sewage treatment plant, degree of treatability of wastes in the sewage treatment plant and other pertinent factors. Substances prohibited are as follows:

(1) Any liquid or vapor having a temperature higher than 150°F or 65°C.

(2) Any waters or wastes containing fats, wax, grease or oils, whether emulsified or not, in excess of 100 mg/L or contain substances which may solidify or become viscous at temperatures between 32 and 150°F or between 0 and 65°C.

(3) Any garbage that has not been properly shredded. Also the installation and operation of any garbage grinder equipped with a motor of three fourths horsepower (0.76 hp metric) or greater shall be subject to the review and approval of the Superintendent.

(4) Any waters or wastes containing strong acid iron pickling wastes, or concentrated plating solutions, whether neutralized or not.

(5) Any ground or unground fruit peelings and cores from commercial canneries and/or packing plants. This also includes cull fruits and vegetables and ordinary fruits and vegetables and related seeds.

(6) Any waters or wastes containing iron, chromium, copper, zinc and similar objectionable or toxic substances; or wastes exerting an excessive chlorine requirement, over five parts per million to a degree that any material received in the composite sewage at the sewage treatment works exceeds the limits established by the Superintendent for such materials.

(7) Any waters or wastes containing phenols or other taste or odor producing substances, in such concentrations exceeding limits which may be established by the Superintendent as necessary, after treatment of the composite sewage, to meet the requirements of the state, federal or other public agencies or jurisdiction for the discharge to irrigation lands and/or receiving waters.

(8) Any radioactive wastes or isotopes of such half life or concentration as may exceed limits established by the Superintendent in compliance with applicable state or federal regulations.

(9) Any waters or wastes having a pH in excess of 9.0.

(10) Materials which exert or cause the following.

(a) Unusual concentrations of inert suspended solids (such as, but not limited to, Fullers earth, lime slurries and lime residues) or of dissolved solids (such as, but not limited to, sodium chloride and sodium sulfate).

(b) Excessive discoloration (such as, but not limited to, dye wastes and vegetable tanning solutions).

(c) Unusual BOD, chemical oxygen demand or chlorine requirements in such quantities as to constitute a significant load on the sewage treatment works.

~~(d) Unusual volume of flow or concentration of wastes constituting slug as defined in § 51.002.~~

~~(11) Waters or wastes containing substances which are not amenable to treatment or deduction by the sewage treatment processes employed, or are amenable to treatment only to a degree that the sewage treatment plant effluent cannot meet the requirements of other agencies having jurisdiction over discharge to the irrigation lands and/or receiving waters.~~

~~(B) Waste rejection, discharge control or pretreatment.~~

~~(1) If any waters or wastes are discharged, or are proposed to be discharged to the public sewers, which contain the substances or possess the characteristics enumerated in division (A) of this section, and which in the judgement of the Superintendent, may have a deleterious effect upon the sewage works, processes, equipment or irrigation lands and/or receiving waters, or which otherwise create a hazard to life or constitute a public nuisance, the Superintendent may do the following.~~

~~(a) Reject the wastes.~~

~~(b) Require pretreatment to an acceptable condition as a requirement for discharge to the public sewers.~~

~~(c) Require control over the quantities and rates of discharge.~~

~~(d) Require additional payment to cover the added cost of handling and treating the wastes not covered by existing taxes or sewer charges under § 51.078.~~

~~(2) If the Superintendent permits the pretreatment or equalization of waste flows, the design and installation of the facilities and equipment shall be subject to the review and approval of the Superintendent, and subject to the requirements of all applicable codes, ordinances and laws.~~

~~(Ord. 981, passed 1-28-92) Penalty, see § 51.999~~

## **51.073 PRETREATMENT FACILITIES MAINTENANCE.**

~~Where pretreatment or flow equalizing facilities are required relative to water or waste to be discharged to the public sewer, they shall be maintained at a level of continuous and satisfactory and effective operation by the property owner at such owner's expense.~~

~~(Ord. 981, passed 1-28-92) Penalty, see § 51.999~~

## **51.074 INTERCEPTORS.**

~~Grease, oil and sand interceptors shall be provided by the property owner when, in the opinion of the Superintendent, the devices are necessary for the proper handling of liquid wastes containing grease in excess amounts, any flammable wastes, sand or other harmful ingredients; with the exception that the interceptors shall not be required for private living quarters or dwelling units. The following shall apply to interceptor installations.~~

~~(A) All interceptors required to be installed shall be of a type, performance quality and capacity as approved by the Superintendent.~~

~~(B) The installed device shall be located in such a manner as to be readily and easily accessible for cleaning and inspection.~~

~~(C) Access for periodic cleaning and inspection of the installed interceptors will not be withheld by the property owner.~~

~~(D) All costs, including original installation, future replacement, inspection and cleaning, are the responsibility of the property owner.~~

~~(Ord. 981, passed 1-28-92) Penalty, see § 51.999~~

## **51.075 INDUSTRIAL WASTES.**

The following shall apply to the control of industrial wastes to be or which are inadvertently being discharged into the public sewer from industries which exhibit excess strengths or characteristics of excess strengths.

~~(A) The controls for industrial waste admission apply if BOD in excess of or equal to 200 mg/L or suspended solids in excess of or equal to 150 mg/L is found to exist as a result of composite sample testing.~~

~~(B) The composite sample taken shall consist of no less than 12 individual samples taken at a minimum of 30-minute intervals over a period which is not less than six hours.~~

~~(C) Review and written acceptance by the city shall be obtained prior to the discharge into the public sewers of any waste having BOD in excess of or equal to 200 mg/L or a suspended solids content in excess of or equal to 150 mg/L.~~

~~(D) Pretreatment facilities shall be required if in the opinion of the Superintendent a need exists to modify or eliminate industrial wastes that are harmful to the structures, processes or operations of the sewage treatment works. In such cases, the property owner(s) shall provide at their own expense any pretreatment or processing facilities as may be determined necessary by the Superintendent to render the industrial waste acceptable for admission to the public sewers.~~

~~(E) Any industry planning to discharge wastes from a canning, freezing or food packing operation shall not be allowed to discharge the industrial waste into the public sewer.~~

~~(F) The volume of flow used for computing industrial waste charges shall be metered water consumption of the industrial user or customer as shown in the records of meter readings maintained by the city. If the industrial user or customer discharging industrial wastes into the public sewers procures any part, or all, of its water supply from sources other than the City Water Department, all or a part of which is discharged into the public sewers, the additional water supply shall be metered. In such cases the industrial user or customer shall install and maintain at his/her expense water meters of a type approved by the Superintendent for the purposes of determining the volume of water obtained from these other sources.~~

~~(G) Where, in the judgement of the Superintendent, it is deemed necessary to protect the public sewer system, certain industrial plants may be required to have separate collection systems; one system to be installed for customary sanitary sewage which is connected directly to the public sewer system; a second system to be installed to collect processing wastes from shop sinks, floor drains, wash stations, plating or cleaning works and all other industrial waste sources. The waste from this system shall be discharged into an exterior concrete sump of sufficient capacity to hold at least two day's discharge from these sources and be connected to the city sewer system only by a valved overflow. The sump shall be readily accessible for inspection and analysis by the city, and only properly treated or neutralized wastes will be allowed to flow into the city's sewer system. The city reserves the right to require that city approval be secured for each incident of discharge into the city's sewer system.~~

~~(Ord. 981, passed 1-28-92) Penalty, see § 51.999~~

## **51.076 CONTROL MANHOLES; SAMPLING DEVICES.**

(A) When required by the Superintendent, the owner of any property serviced by a building sewer carrying industrial wastes shall install a suitable control manhole, together with the necessary meters and other appurtenances in the building sewer to facilitate observation, sampling and measurement of the wastes. The manhole, when required, shall be accessibly and safely located, and shall be constructed in accordance with plans approved by the Superintendent. The manhole shall be installed by the owner at his/her expense, and shall be maintained by the owner so as to be safe and accessible at all times. The flow measurement device can be a Parshall flume, weir, venturi nozzle, magnetic flow meter or any other type of device providing accurate and continuous flow indications. Pump timers or other indirect measurement devices will not be acceptable. The flow meter shall be suitable for indicating and totalizing the flow in millions of gallons per day through the device, provided above, with an error not exceeding plus or minus 2%. The instrument shall be equipped with a set of electrical contacts arranged to momentarily close a circuit to energize a process timer and sampling device for every fixed quantity of flow. This quantity should be selected so as to insure a minimum of 12 samples per operating day. Other control variations will be acceptable if it can be demonstrated to the Superintendent that the sampling procedure will result in a waste sample which is proportional to the waste flow.

(B) The length of operation of the sampling device shall be dependent on the type of sampling arrangement used, but in no case shall the daily collected sample be less than two quarts in volume.

The method of sampling used can be continuous pumping past a solenoid operated valve, direct pumping into sample containers, continuous pumping past a sampler dipper calibrated to remove a constant sample, by a proportional dipper sampler operating directly in the waste flow or by any other approved means. All samples must be continuously refrigerated at a temperature of 39°F, plus or minus five degrees. The flow measurement and sampling station shall be located and constructed in a manner acceptable to the city. Complete plans on all phases of the proposed installation, including all equipment proposed for use, shall be submitted to the city for approval prior to construction. The person discharging the waste shall keep flow records as required by the city and shall provide qualified personnel to properly maintain and operate the facilities.

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

## **51.077 SAMPLING STANDARDS.**

All measurements, tests and analysis of the characteristics of waters and wastes to which reference is made in this chapter shall be determined in accordance with the latest edition of *Standard Methods for the Examination of Water and Wastewater*, published by the American Public Health Association, and shall be determined at the control manhole provided, or upon suitable samples taken at the control manhole. In the event that no special manhole has been required, the control manhole shall be considered to be the nearest downstream manhole in the public sewer to the point at which the building sewer is connected. Sampling shall be carried out by customarily accepted methods to reflect the effect of constituents upon the sewage works and to determine the existence of hazards to life, limb and property. (The particular analysis involved will determine whether a 24-hour composite of all outfalls of a premises is appropriate or whether a grab sample or samples should be taken. Normally, but not always, BOD and suspended solids analysis are obtained from 24-hour composites of all outfalls whereas pH's are determined from periodic grab samples.)

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

## **51.078 SPECIAL AGREEMENTS.**

No statement contained in this subchapter shall be construed to prevent any special agreements or arrangements between the city and any industrial concern whereby an industrial waste of unusual strength or character may be accepted by the city for treatment, subject to payment therefor, by the industrial concern. As such, any payments associated with the arrangements will be determined by special contract between the city and the specific industrial concern for which the special arrangements have been made.

(Ord. 981, passed 1-28-92)

## INFILTRATION AND INFLOW

### 51.085 NOTICE TO CORRECT.

All property owners identified by the city as contributors to excessive or improper infiltration or inflow into the public sewer shall be advised in writing of their infiltration and inflow problems by the city.

(Ord. 981, passed 1-28-92)

### 51.086 TIME LIMIT FOR CORRECTIVE ACTION.

The owners of all properties who need to take corrective action shall be provided a 60-day grace period in which to correct the infiltration and inflow problems as identified by the city [unless such inflows are detrimental to the public sewer](#). The 60-day grace period shall commence on the date of notification.

(Ord. 981, passed 1-28-92)

### 51.087 NOTICE OF CORRECTIVE ACTION TAKEN.

By the end of the 60-day grace period, each property owner shall notify the city that corrective actions have been or are in progress of being taken.

Details with respect to corrective actions taken or expected to be taken and the anticipated completion date shall be specified in the notification to the city.

(Ord. 981, passed 1-28-92)

### 51.088 FAILURE TO CORRECT.

(A) *Failure to notify.* A property owner who fails to notify the city of corrective actions prior to the end of the 60-day grace period shall be subject to termination of service, without further notice. The termination of service shall include immediate discontinuance and shut off of the property owner's water service, if the service is provided by the city, until the violation shall have been corrected in accordance with federal, state and city regulations.

(B) *Continuation of excess infiltration or inflow.* In the instance that excessive or improper infiltration or inflow into the public sewer of the city [is detrimental to the operation of the public sewer or shall continue](#) beyond the 60-day grace period, it is hereby declared that the continuing infiltration or inflow is a public nuisance, that the city shall have the right to abate the public nuisance and to enter upon any private property [connected to the public sewer](#) ~~within the city~~ for such purpose and shall assess the cost of the abatement as a lien against the property upon which the continuing infiltration and inflow occurs and shall assess the cost of the abatement to the property upon or from which the infiltration and inflow occurs. The assessment shall be levied by the filing of a statement of the costs together with the description of the property or properties to be assessed, together with the names of the owner(s) thereof with the City Manager, whereupon the City Manager shall forthwith enter the assessment as a lien against the property. An administration fee of 15% of the cost shall also be charged and collected by the city in addition to all costs of abatement.

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

## SERVICE; CHARGES AND BILLING

### 51.100 DEFINITIONS.

For the purpose of this subchapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning. All definitions included in ~~§~~[section](#) 51.002 are incorporated herein by reference.

**COMMERCIAL USER.** Any premises used for commercial or business purposes which are not determined to be an industry as defined in this subchapter.

**DOMESTIC WASTE.** Any wastewater which would, under ordinary facts and circumstances, emanate from dwellings.

**EQUIVALENT ~~RESIDENTIAL-DWELLING UNIT (EDRU)~~.** A volume of wastewater emanating from an average residential dwelling unit in the city's ~~sewer~~-treatment works service area which is assumed to incur the same costs for operation and maintenance as the average volume of domestic waste. When ~~EDRU~~'s are relied upon in establishing user charges, the city shall utilize the metered water use records of the residential dwelling units in the [City's](#) treatment works service area for purposes of making this determination.

**INDUSTRIAL USER.** ~~Industrial user means a~~[Any source of a direct or indirect discharge to the sewage system other than a domestic or commercial user. Additionally, two specific types of industrial users exist and are defined below.](#)

[\(1\) Categorical Industrial User. A user regulated by one of the U.S. Environmental Protection Agency's \(EPA\) categorical pretreatment standards as listed in 40 CFR Chapter 1, Subchapter N, Parts 405 through 471.](#)

[\(2\) Significant Industrial User. A user subject to the categorical pretreatment standards; or a user that:](#)

[\(a\) Discharges an average of 25,000 gallons per day \(GPD\) or more of process wastewater to the city sewage system \(excluding sanitary, noncontact cooling, and boiler blowdown wastewater\); or](#)

[\(b\) Contributes to a process wastestream that makes up 5% or more of the average dry weather hydraulic or organic capacity of the treatment plant; or](#)

[\(c\) Is designated as such by the city on the basis that it has a reasonable potential for adversely affecting the treatment plant's operation or for violating any pretreatment standard or requirement.](#)

[\(d\) Upon finding that a user meeting the criteria in subsection \(2\)\(a\) of this definition has no reasonable potential for adversely affecting the publicly owned treatment works' \(POTW\) operation or for violating any applicable pretreatment standard or requirement, the city may at any time, on its own initiative or in response to a petition received from a user and in accordance with procedures established pursuant to 40 CFR 403.8\(f\)\(6\), determine that such user should not be considered a significant industrial user.](#)

~~(1) Any nongovernmental, nonresidential user of the public treatment works which is identified in the "Standard Industrial Classification Manual," 1972, Office of Management and Budget, as amended and supplemented, under the following divisions:~~

~~Division A—Agriculture, Forestry and Fishing~~

~~Division B—Mining~~

~~Division D—Manufacturing~~

~~Division E—Transportation, Communications, Electric, Gas and Sanitary Services~~

~~Division I—Services~~

~~(2) As a general rule, any public treatment works user which discharges more than the equivalent of 25,000 gallons per day (gpd) of sanitary wastes will be considered an industrial user unless an exclusion is requested by the user, and as such is granted by the city.~~

~~(3) Given the aforementioned, a user of the public treatment works system may be excluded from the industrial user category if it is determined by the city that the user will introduce primarily domestic waste and other waste from sanitary conveniences.~~

**LARGE GENERAL USER.** Any user who's water consumption averages more than 30 units/month.

**OPERATION AND MAINTENANCE.** All activities required to ensure the continuous, dependable and economical functions of collection, treatment and discharge of the public treatment works sewage or user wastes. The activities and attendant costs would include, but not be limited to, the following: preventive and corrective maintenance; replacement of equipment; debt service costs; and, control of the unit processes and equipment that make up the collection, treatment and discharge of the public treatment works such as keeping financial and personal management records, laboratory control, process control, safety, emergency operation planning, employment of attorneys and consultants, and payment of court costs and fines.

**PUBLIC TREATMENT WORKS.** A collection, treatment and discharge sewerage system owned and operated by a public authority. "City(s) treatment works" shall be equivalent terms for "Public treatment works".

**REPLACEMENT.** Obtaining and installing any equipment, accessories or appurtenances that are deemed necessary by the city to maintain the capacity and performance for which the collection and treatment works were designed and constructed. This process shall continue during the designed for or useful life, whichever is longer, of the collection and treatment works facilities.

**RESIDENTIAL USER.** The user of a single-family dwelling or such other dwelling units included in multiple unit buildings designed for such purposes.

**SERVICE AREA.** All of the area served by the City collection and treatment works system for which there is one uniform user charge system. The service area shall include the corporate limits of the city and any other contiguous and neighboring territory as the City Council shall, from time to time, deem it necessary to service.



**TREATMENT WORKS.** All facilities used in any manner for the purpose of collecting, pumping, treating and the ultimate disposal of sewage. "Treatment system" and "sewerage system" shall be equivalent terms for "Treatment works"~~TREATMENT WORKS.~~

**USER.** Every building or property owner and/or tenant of any building or property which is connected to, or required by city ordinance to be connected to, the City treatment works ~~system of the city.~~

**USER CHARGE.** The periodic or monthly charges levied on all users of the city's public treatment works.

(Ord. 980, passed 1-28-92)

## 51.101 SERVICE.

Application for services to the city ~~sewage~~-treatment works ~~services~~ shall be made in the following manner.

(A) ~~The application~~ Receipt of payment for services to the city ~~sewage~~-treatment works ~~services~~ shall be considered to be the application for a permit to make a connection to the city's public sewer system. The ~~application receipt~~ will state the purpose for which service is to be used, the address for mailing of the billings and other information as the city may reasonably require. In ~~signing the application~~ making the connection, the property owner agrees to abide by the rules and regulations of the city's public sewer system.

(B) Deposits and establishment of credit shall be performed at the time the application for service ~~by to~~ the city's public sewer system is made. The credit of the applicant shall be established if ~~the following requirements are met:~~ the applicant makes a cash deposit in accordance with the City's fee schedule, adopted by resolution of the City Council. ~~with the city to secure the payment of two months user charges for services, but not less than \$20; or, should the applicant have a history of delinquency of payment for services provided by the city, as determined by the city, the minimum deposit shall be \$50.~~ At the time the deposit is given to the city, the applicant will be provided with a written receipt. The deposit is not to be considered as a payment on account. Deposits are refunded as a credit to the account after 12 consecutive non-delinquent payment. In the event that the service is discontinued, the deposit will be applied to the closing bill and any amount in excess of the closing bill will be refunded to the service account holder ~~property owner.~~ ~~Also, following 12 consecutive nondelinquent payments for city public sewer system services, a property owner may request and receive a refund of the deposit.~~

(C) Users desiring to make a material change in the type and/or quantity of sewage to be discharged into the city's sewerage system shall give the city written notice of the change prior to the change and the original application for service shall be amended.

(Ord. 980, passed 1-28-92)

## 51.102 CHARGES.

(A) *Sewer user charges.* Sewer user charges shall be established on a monthly basis for the use of the city's sewage facilities. All user charges and service connection, disconnection and reconnection charges will result from the fee schedule adopted by ~~a specific~~ resolution of the City Council. ~~and the~~



~~documentation of the charges for specific types of users are attached as exhibits to Ordinance 980, passed 1-28-92.~~

(B) *Applicability of user charges.* All user charges and other fees and charges provided for in [§ section 51.101](#) shall apply to and be the responsibility of each user of the city's sewerage system.

(C) *Process of fixing responsibility.*

(1) The process of fixing responsibility for user charges shall be applied such that the property owner of record shall be responsible for the payment of all charges or surcharges for the city's provision of sewer services. The property owner, ~~if the owner desires,~~ will be notified [by mail](#) of any delinquency in user charge or other associated billings rendered by the city.

(2) ~~User's~~ charges shall be levied on all users of the city's public treatment works. The charges shall cover the costs of operation and maintenance, replacement and other administrative costs of the treatment works. The user charge system relied upon by the city shall distribute these costs in proportion to user responsibility for the wastewater loading of the treatment works.

(D) *Assignment of user charges.* Assignment of user charges to a specific user of the city's treatment works shall be the responsibility of the city. If at any point it is determined by the city that a user's assigned user charge has been incorrectly assigned, the city shall reassign a more appropriate user charge and notify the user of the reassignment. [The number and type of sewer charge is generally based on the following criteria:](#)

[\(1\) The number of user charges assessed per month for those connected to the City's treatment works shall be assessed based on the greater of the following conditions:](#)

[\(a\) Each independent or separate building or property connected to the City's treatment works shall be assessed a minimum of one user charge.](#)

[\(b\) Each dwelling unit shall be assessed one user charge.](#)

[\(c\) A building or property with multiple connections to the City's treatment works or multiple water meters shall be assessed one user charge per connection or meter, whichever is greater.](#)

[\(d\) Additional user charges may be assessed for anything other than a dwelling unit based on usage exceeding that of an average equivalent dwelling unit.](#)

[\(2\) Some buildings or properties shall be charged "Sewer by Consumption" based on their water usage under the following conditions:](#)

[\(a\) Any user that meets the definition of a "Large General Service User".](#)

[\(b\) Any user that meets the definition of a "Significant Industrial User".](#)

(E) *Records.* ~~Available R~~records which justify the basis used to assign wastewater ~~contributions charges~~ ~~which and formed~~ the foundation for existing user charges shall be [maintained within the current user account system and](#) ~~kept on file with the City Manager and shall~~ be available for public inspection.

(F) *Beginning of sewer user charges.* The beginning of sewer user charges for all occupied property shall be the day following when the sewer service became available or the day that the connection is made to the public treatment works, whichever occurs first. The sewer user charges for all unoccupied property

shall commence on the day after the property is ready for occupancy or on the first day of occupancy, whichever occurs first. All unoccupied property which is ready for occupancy at the time the sewer service becomes available shall be treated as occupied property and charged as such.

(G) *Credit for vacancy.* Once the sewer user charge has been commenced, a user shall not be allowed a credit for vacancy. In the event a building being supplied City sewer service is removed, condemned, destroyed by fire or other calamity, the owner of record must notify the City of Prineville to discontinue monthly billing charges. Once the City has verified the condition, and confirmed that City sewer service cannot be utilized, the monthly billing charges will be suspended. If the property owner of record later wishes to re-establish sewer service to the property, the connection fees will be waived unless there is a change of use on the property that would normally require additional fees or charges to be collected.~~unless the user can demonstrate that water service to the property from any and all sources has been discontinued. When a demonstration of the conditions can be made, the user's charge shall be appropriately pro-rated based on the days of usage divided by 30 days, which in no case shall exceed the total amount of the monthly user charge. Payment will be made by the city to the property owner for the calculated amount less any then-outstanding user account balances owed to the city. The regular user charge shall be reinstated as soon as water service, from any source, has been reconnected to the user's property.~~

(H) *Review and revision of sewer user charges.* Review and revision of sewer user charges established in this section shall, ~~at~~ a minimum, be reviewed annually and if necessary be revised periodically to reflect user changes and the recovery of actual costs of operation, maintenance and replacement of the City's treatment works. Adjustments may also be made between specified types of applicable user charges to maintain the equitability of the user charges with respect to cost causation criteria. Cost causation charges will be determined on the basis of the proportional distribution of the costs of sewer service in proportion to each user group's contribution to the total wastewater loading of the City treatment works.

(I) *User notification of the need for revised user charges.* User notification of the need for revised user charges will be made, in conjunction with a regular bill or through other standard means of public announcement, at least one month prior to the effective date of the revised user charges.

(J) *Waiver of notification requirements.* Waiver of notification requirements will be allowed in case of emergency. In such instances, an emergency will be declared to exist when it is necessary for the health and safety of the people of the city for additional funds to be collected for the proper operation and maintenance of the public treatment works. In such cases an emergency may be declared to exist by the ~~City Council~~City Manager and upon approval by the City Council~~City Mayor~~. ~~†~~The revised user charges shall be placed into effect immediately. When such an emergency is declared, the user notification requirements relative to a change in user charges shall be waived.

(K) *Cost of service notification.* Cost of service notification for user charges attributable to the City's treatment works, is conducted through the standard means of public announcement, pursuant to the adoption of the City's fee schedule by resolution of City Council. ~~shall be conducted by the city, with notification being made to each user no less frequently than on an annual basis. As such, each user shall be notified, in conjunction with a regular bill, of that portion of the user charges which are attributable to the operation, maintenance and replacement of the wastewater collection, treatment and disposal system.~~

(L) *Responsibility for payment of sewer user charges.* Responsibility for payment of sewer user charges shall be that of the ~~person who owns the property~~owner of record. The responsibility for payment to the city does not pass to the tenant or other occupants, notwithstanding the fact that tenants or other occupants may be required by the property owner to pay the charges. A new tenant shall not be allowed to open an

account for city sewer service until all balances owing for water and sewer charges on the property are paid in full.

(M) *Appeals.* Appeals of the sewer user charges established by the city shall be made in writing to the City Manager within ten days of the billing of the sewer user charges. The City Manager shall respond in writing within ten days of receipt of any appeal. If the user wishes to appeal further, he/she shall request in writing that the City Manager place his/her specific appeal on the agenda of the next scheduled regular City Council session. The decision of the City Council at the session shall be final.

(N) *Disputed Charge.* A customer of the city's sewer system has six (6) months from the date of billing to notify the city of any disputed charge. The city shall not be obligated to issue a credit for billing disputes occurring more than six (6) months prior to the date of such notification.

(Ord. 980, passed 1-28-92) Penalty, see § 51.999

## **51.103 BILLING, PAYMENT AND COLLECTION.**

The billing process will be conducted in the following manner.

(A) ~~(A)~~ The users of the public treatment works system shall be billed no more frequently than on a monthly basis for services provided by the city in accordance with the ~~sewer user charge~~ City's fee schedule as set ~~forth in the exhibits attached to Ordinance 980, passed 1-28-92, incorporated herein by reference.~~ by resolution of City Council.

(B) The sewer user charges shall be due and payable to the city no later than the due date shown on the bill ~~30 days after the date of billing.~~ If not paid on or before ~~30 days after the billing date~~ the due date, the sewer user charges shall be deemed ~~to be~~ delinquent.

(C) Payments for combined water/sewer bills shall be credited to the oldest bill. The payment shall be applied first to amounts owing on the sewer account and then to amounts owing on the water account.

(D) The billings address for city sewer user charges shall be the address specified in the application for the permit to make the connection. This will continue until a different owner or user of the property, and a corresponding change in billing address, is reported ~~in written form~~ to the City's Finance Department ~~of Public Works.~~

(E) All collections of sewer user charges and other specified fees and charges shall be made by the City's Manager or designee. Sewer user charges and other fees and charges shall be set by City resolution. ~~computed as provided in the sewer user charge and service charge exhibits attached to Ordinance 980, passed 1-28-92, and shall be payable as provided in this subchapter.~~

(Ord. 980, passed 1-28-92; Am. Ord. 1028, passed 11- -95)

## **51.104 DELINQUENT ACCOUNTS.**

(A) Delinquent accounts shall be charged a service charge fee set by resolution of the City Council ~~interest at a rate of 1% per month from the date of delinquency. In addition, a service charge shall be assessed at a rate of \$5 per month from the date of delinquency~~ in order to allow for the recovery of the city's administrative costs relative to the delinquent account. The service charge ~~payment~~ shall be added

to the account balance and shall accrue interest in the same manner as all other delinquent charges ~~beginning with the month following the month of delinquency.~~

(B) Disconnection/reconnection in the event of extended delinquencies shall be conducted in the following manner.

(1) After an account becomes delinquent, a ~~turn-off~~suspension notice will be sent to the billing address. The notice shall state a date not less than ten days from the date of the notice on which water service to the premises will be turned off if the delinquent~~ey~~ amount is not paid in full prior thereto. On or after the ~~turn-off~~suspension -date, if the delinquent amount has not been paid in full, the ~~Superintendent~~agent of the city may disconnect the service of the water system to the premises. Water services will be withheld until all ~~delinquent~~ amounts owing for ~~sewer~~ services supplied to the premises have been paid in full, together with the ~~reconnection~~suspension fee for the water services. ~~The amount of the reconnection fee for the water service is specified in the city's water system ordinances incorporated herein by reference.~~

(2) In some instances, ~~such as when the City does not control the water supply, in the event of failure to pay sewer charges after they have become delinquent,~~ the city shall have the right to remove or close the sewer connection ~~in the event of failure to pay sewer charges after they have become delinquent.~~ The same delinquency and notification period as detailed in division (B)(1) of this section would also apply. In these cases, the city shall be allowed the right of entry upon the property owner's property for accomplishing such purposes.

The total expense of the discontinuance, removal or closing, as well as the expense of restoring service, shall be a debt due to the city and be represented by a lien upon the property. In such cases the amount owed the city, as represented by the lien on the property, may be recovered by civil action in the name of the city against the property owner, the person, or both. Also, the city may enforce the collection of the charges by any means that may be provided by the laws of the state or permitted by the charter and ordinances of the city. This would include certification to the Tax Assessor of Crook County for collection in the manner provided for under O.R.S. 454.225.

(C) Change in ownership or occupancy of premises for which the sewer user charge account is found to be delinquent shall not be cause for reducing or eliminating any of the aforementioned penalties.

(Ord. 980, passed 1-28-92; Am. Ord. 1103, passed 5-13-03)

## 51.105 SEWER FUND.

The City Manager is hereby directed to deposit in the City Sewer Fund all of the gross revenues received from charges, rates and penalties collected for the use of the sewerage system as herein provided. As such, the funds deposited in the City's Sewer Fund shall be used for the operation and maintenance and replacement of the ~~public~~City's treatment works~~-system~~; administration costs; expenses of collection of charges resulting from this subchapter; and, the payment of the principle and interest on any debts which are directly or indirectly related to the ~~public~~City's treatment works~~-system of the city~~.

(Ord. 980, passed 1-28-92)

## PROHIBITIONS AND RESTRICTIONS

### 51.115 PROPERTY DAMAGE AND INTERFERENCE.

(A) *Tampering with the sewage works system is prohibited.* No unauthorized person shall maliciously, willfully or negligently break, damage, destroy, uncover, deface or tamper with any structure, appurtenance or equipment which is a part of the sewage works system. Any person violating this provision shall be prosecuted in accordance with the Oregon Criminal Code.

(B) *Liability for damages.* The property owner shall be liable for damage to a tank or pump or other equipment or property owned by the city which is caused by an act of the customer, his/her tenants, or agents. The city shall be reimbursed by the customer for the damages upon presentation of a bill.

(Ord. 981, passed 1-28-92)

## **51.116 DANGEROUS OR UNSAFE APPARATUS.**

The city may refuse to furnish sewer service to a premises where an apparatus, appliance or other type of equipment using the sewer system is dangerous or unsafe or the devices are being used in violation of laws, ordinances or legal regulations. The city does not assume liability for inspecting apparatus on the customer's property. The city does reserve the right of inspection, however, if there is reason to believe that [an](#) unsafe or illegal apparatus is in use. The right to access for the inspections, when requested by the city, shall not be withheld by the property owner.

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

### **ADMINISTRATION AND ENFORCEMENT**

## **51.130 DISCONNECTION DUE TO NONCOMPLIANCE.**

The city may discontinue [sewer service and/or](#) water service to a customer for noncompliance with the terms of this chapter if the customer fails to comply with the terms within ten days after receiving written notice of the city's intention to discontinue service. Provided, however, if the noncompliance materially affects the health, safety or other conditions that warrant the action, the city may discontinue water service immediately and without notice.

(Ord. 981, passed 1-28-92)

## **51.131 INSPECTIONS; RIGHT OF ENTRY.**

(A) *Entry on owner's property to be permitted.* The ~~Superintendent~~[Public Works Director](#) and other duly authorized employees of the city bearing proper credentials and identification shall be permitted to enter all private and public properties for the purposes of, but not limited to, installations as required, connections, maintenance, inspection, observation, measurement, sampling and testing in accordance with the provisions of this chapter. The ~~Superintendent~~[Public Works Director](#) or his/her representatives shall have no authority to inquire into any processes including metallurgical, chemical, oil, refining, ceramic, paper or other industries beyond those which have a direct bearing on the kind and source of discharge to the sewers or waterways or facilities for waste treatment.

(B) *Conformance with safety rules.* While performing the necessary work on private properties referred to in division (A) of this section, the ~~Superintendent~~[Public Works Director](#) or duly authorized employees of the city shall observe all safety rules applicable to the premises.

(C) *Easements allowing entry on property.* The ~~Superintendent~~[Public Works Director](#) and other duly authorized employees of the city bearing proper credentials and identification shall be permitted to enter all private properties through which the city holds an easement for the purposes of, but not limited to,

installations of facilities, connections, inspections, observation, measurement, sampling, repairs and maintenance of any portion of the sewage works lying within the easement.

(Ord. 981, passed 1-28-92)

## **51.998 VIOLATIONS.**

(A) *Notice of violation.* Any person found to be violating any provision of this chapter, [with the exception of sections 51.086, §§ 51.115 and 51.116](#), shall be served with written notice stating the nature of the violation, with notification that the violator is given ~~ten~~ [10](#)-days to satisfactorily correct the violation. The offender shall, within the ~~period of~~ time stated in the notice, permanently cease all violations. With respect to damages to the sewer system and associated cost and fines to the city resulting from the violation(s), the property owner shall be responsible for the costs and be billed accordingly.

(B) *Liability.* Any person violating any of the provisions of this chapter shall become liable to the city for any expense, including reasonable attorney fees, loss or damage occasioned the city by reason for the violation, and in action or suit in the name of the city may be instituted against the person for the recovery of the expense, loss or damage; and the same may be undertaken in addition to other penalties imposed under the provisions of the chapter.

(Ord. 981, passed 1-28-92) Penalty, see § 51.999

## **51.999 PENALTY.**

Any person who shall continue any violation beyond the time limits provided for in ~~§~~ [section 51.998\(A\)](#), shall be deemed guilty of a violation, and, upon conviction, shall be penalized as provided in ~~§~~ [section 10.99](#).

(Ord. 981, passed 1-28-92)

**RESOLUTION NO. 1538  
CITY OF PRINEVILLE, OREGON**

**A RESOLUTION APPROVING LOCAL LIMITS REPORT**

**Whereas**, as part of the City of Prineville’s (“City”) Industrial Pretreatment Program, it is required to develop the maximum allowable headworks loadings (“MAHLs”) and maximum allowable industrial loadings (“MAILs”) for pollutants of concern (“POC”).

**Whereas**, The development of MAHLs and MAILs allows the City to determine whether the implementation of local limits would be required to adequately protect the City’s wastewater treatment facility (“WWTF”) from potential treatment inhibition or POC introduction in quantities that may pass through the WWTF and cause violation of the City’s National Pollutant Discharge Elimination System permit.

**Whereas**, Anderson Perry has prepared a Local Limits Report, dated September 2020, attached hereto and incorporated herein, that developed local limits for the City. These limits will be used when issuing industrial wastewater permits under the pretreatment program.

**Whereas**, a public hearing was held September 27, 2022, at the Prineville City Council meeting to allow an opportunity for any interested person to appear and present comment.

**Whereas**, City staff believes it is in the best interest of the City to approve the attached Local Limits Report.

NOW, THEREFORE, the City of Prineville resolves that the attached Local Limits Report, dated September 20, 2022, is hereby accepted and approved.

Approved by the City Council this \_\_\_\_ day of October, 2022.

\_\_\_\_\_  
Rodney J. Beebe, Mayor

ATTEST:

\_\_\_\_\_  
Lisa Morgan, City Recorder

# LOCAL LIMITS REPORT

SEPTEMBER 2020



Prepared for the  
City of Prineville, Oregon



**LOCAL LIMITS REPORT**  
**FOR**  
**CITY OF PRINEVILLE, OREGON**

**SEPTEMBER 2020**



**ANDERSON PERRY & ASSOCIATES, INC.**

La Grande, Redmond, and Hermiston, Oregon  
Walla Walla, Washington

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## Introduction

The purpose of this Report is to present the development of maximum allowable headworks loadings (MAHLs) and maximum allowable industrial loadings (MAILs) for pollutants of concern (POC) to the City of Prineville, Oregon, as part of the City's Industrial Pretreatment Program (IPP). The development of MAHLs and MAILs allows the City to determine whether the implementation of local limits would be required to adequately protect the City's wastewater treatment facility (WWTF) from potential treatment inhibition or POC introduction in quantities that may pass through the WWTF and cause violation of the City's National Pollutant Discharge Elimination System (NPDES) permit.

## Background

### *Wastewater Treatment Facility Description*

This section provides a general overview of the City's WWTF. Wastewater from the collection system undergoes influent screening and grit removal. Following preliminary treatment, wastewater flow is split to either Plants 1 or 2, as shown on Figure 1 - Treatment Process Flow Schematic, in Appendix A. Below are descriptions of the treatment processes performed by Plants 1 and 2.

#### **Plant 1**

Plant 1 features a partially aerated primary lagoon followed by a secondary lagoon. Following the secondary lagoon, chlorine is injected into the oxidized wastewater, which then flows through the chlorine contact chamber and to an irrigation storage lagoon (referred to as the "Golf Course Irrigation Storage Lagoon"). Treated wastewater from the Golf Course Irrigation Storage Lagoon is then beneficially reused as irrigation water at the City-owned Meadow Lakes Golf Course located nearby.

#### **Plant 2**

Plant 2 features two aerated primary lagoons in series followed by a secondary lagoon. After the secondary lagoon, chlorine is injected into the oxidized wastewater, which then flows through the chlorine contact chamber and into an irrigation storage lagoon (referred to as the "Kidney Pond"). Treated wastewater in the Kidney Pond is then either beneficially reused for irrigation at nearby pastureland or flows to bentonite-lined treatment wetlands for additional treatment. After receiving additional treatment, the treated wastewater is indirectly discharged to the Crooked River via unlined disposal wetlands. Both plants are connected by piping for operational flexibility.

### *Regulatory Water Quality and Sludge Standards*

The WWTF's NPDES Permit contains discharge limits for the following parameters: five-day biochemical oxygen demand (BOD<sub>5</sub>), total suspended solids (TSS), pH, and E. coli bacteria. For many of the POCs resulting from industrial practices, the City's NPDES Permit requires the WWTF to "comply with any applicable effluent standards or prohibitions established under Oregon Administrative Rule (OAR) 340-041-0033 and section 307(a) of the federal Clean Water Act for toxic pollutants." The OAR contains reference to multiple tables with water quality criteria for multiple pollutants (see Appendix B). These water quality criteria are based on acute and chronic toxicity to

aquatic wildlife and for human consumption. Three tables establish these water quality criteria as follows:

- Table 30 lists water quality criteria for aquatic species as established by the Environmental Protection Agency (EPA).
- Table 31 lists water quality criteria for aquatic species used by the Oregon Department of Environmental Quality for permitting. These criteria include more compounds than Table 30 and have tighter standards for some of the parameters listed on Table 30.
- Table 40 lists water quality criteria for human health as approved by the EPA in April 2014.

Because the City indirectly discharges to the Crooked River via disposal wetlands, groundwater quality criteria also apply to the City's effluent. Tables with reference levels for groundwater quality are found in OAR 340-40-0030. The three tables that establish groundwater quality references are as follows (see Appendix B):

- Table 1 lists numerical groundwater quality reference levels for inorganic contaminants.
- Table 2 lists numerical groundwater quality reference levels for organic contaminants.
- Table 3 lists numerical groundwater quality reference levels for miscellaneous contaminants.

## Sampling and Analysis Plan Summary

To have sound, technically based local limits, the City developed a sampling and analysis plan (SAP). The SAP was developed to obtain quantitative information regarding the concentration, loads, and seasonal fluctuations of specific pollutants entering the City's collection system and WWTF. Results from the SAP were used to quantify pollutant concentrations in the following areas:

1. WWTF headworks, effluent, and unit operations for both treatment plants to determine the removal efficiencies of each POC throughout each plant.
2. Significant industrial user (SIU) process wastewater discharge locations to determine existing discharge concentrations from SIUs.
3. An area of the collection system not impacted by industrial users to determine background concentrations of pollutants from unregulated residential and commercial zones.

Pollutants monitored under the SAP included 14 of the 15 national POCs, as listed below. Ammonia, the fifteenth national POC, was excluded from sampling because it is not known to be contributed by industrial sources.

- Arsenic
- BOD<sub>5</sub>
- Cadmium
- Chromium
- Copper

- Cyanide
- Lead
- Mercury
- Molybdenum
- Nickel
- Selenium
- Silver
- TSS
- Zinc

## Monitoring Results

Sampling results at the various locations have been summarized and are included in Appendix C. The results were compiled by the City and entered into a spreadsheet, which was sent to Anderson Perry & Associates, Inc., for analysis. Table 1 below shows the number of samples collected at each sampling point.

**TABLE 1  
SAMPLING LOCATIONS AND FREQUENCY**

Location	Number of Samples
Influent	8
Plant 1 Primary Effluent	7
Plant 2 Primary Effluent	7
Plant 1 Effluent	7
Plant 2 Effluent	7
Apple Effluent	8
Facebook Effluent	7
Manhole 857 Domestic Non-industrial	7
Plant 1 Pretreatment Sludge	2
Plant 2 Pretreatment Sludge	2
Plant 1 Sludge	2
Plant 2 Sludge	2

## Conventional Pollutants

Conventional pollutants include BOD<sub>5</sub>, TSS, and fats, oils, and grease (FOG). Though the WWTF is approaching treatment capacity for BOD<sub>5</sub>, the total flow coming from the currently permitted Industrial Users (IUs) equates to approximately 0.06 million gallons per day, or 6 percent of the entire contributing flow to the WWTF. Furthermore, these IUs are not industries that produce excessive quantities of these pollutants. In addition, FOG has historically been managed through best management practices (BMPs)

via the use of grease traps and/or grease interceptors. BMPs will continue to be implemented and monitored for the control of FOG.

For these reasons, no numeric local limits are established in this Report for conventional pollutants. However, to ensure that any existing industrial or commercial users that contribute BOD<sub>5</sub> loads in concentrations higher than the typical domestic load are equitably charged for the extra WWTF capacity consumed by their load, the City has elected to establish a “soft” BOD<sub>5</sub> and TSS limit of 400 milligrams per liter (mg/L). Users that exceed this limit may be subject to additional charges based on the amount of extra load in their discharged wastewater.

The 400 mg/L limit was determined based on the measured concentrations for BOD<sub>5</sub> and TSS in the City’s domestic waste stream. Average domestic concentration for BOD<sub>5</sub> and TSS during the City’s sampling were approximately 275 mg/L and 200 mg/L, respectively, with maximum domestic concentrations for BOD<sub>5</sub> and TSS reaching approximately 335 mg/L and 340 mg/L, respectively. To determine the 400 mg/L limits, the maximum sample concentrations were multiplied by a 10 percent safety factor then rounded up to the nearest 50 mg/L.

Local limits for conventional pollutants may need to be reevaluated should an industry with high conventional pollutant loading (e.g., brewery, slaughterhouse, or other food processing industry) connect to the City’s collection system.

## Maximum Allowable Headworks Load Development

### *Removal Efficiencies*

In developing the MAIL, removal efficiencies for the pollutants found in the liquid stream were calculated through the entirety of the WWTF and through the primary treatment lagoon. These removal efficiencies were calculated for all monitored pollutants. Removal efficiencies were calculated using the Mean Removal Efficiency method (described in Chapter 5 of EPA Local Limits Guidance) as shown in Equation 1.

#### Equation 1: Mean Removal Efficiency

$$\%Removal = \frac{Avg. Influent_{conc.} - Avg. Effluent_{conc.}}{AvgInfluent_{conc.}}$$

This method was chosen because it dampens daily variability in removal efficiency when limited sample quantities are available. Appendix C includes the average influent and effluent concentrations for the overall plant and for the primary treatment.

### **Negative Removal Efficiencies**

While calculating removal efficiencies, some efficiency values were negative for a POC.

For the average cyanide samples, the average influent concentration was lower than the effluent concentration through Plant 1’s secondary treatment. The lower effluent concentration resulted in a negative average removal efficiency of approximately 18 percent for Plant 1. Review of the sampling results in Appendix C revealed that the cyanide result at the Plant 1 effluent for December 17, 2018, was an order of magnitude higher than any other sample

results in the data set. The extreme difference between this one sample and all other cyanide samples at all other locations in Plant 1 suggests that this result may be inaccurate. All samples taken after this date were close to or below the minimum detection limit for cyanide. Due to the limited number of positive detections, this negative removal efficiency was kept to provide a conservative method of calculating the allowable headworks loading (AHL).

The average selenium influent concentration was lower than the effluent concentration through Plant 1's secondary treatment. This lower effluent concentration resulted in a negative average removal efficiency of approximately 57 percent for Plant 1. Review of the sampling results in Appendix C revealed that the cyanide result at the Plant 1 effluent for April 9, 2019, was approximately an order of magnitude higher than any other Plant 1 effluent sample result. The overall negative removal rate through Plant 1 for April 9, 2019, was approximately 546 percent, suggesting that this sample result may be inaccurate. Removing the sample results for this date results in an overall average removal efficiency of approximately 45 percent for Plant 1; however, the overall local limit for selenium would be minimally impacted due to the low overall removal efficiency through Plant 2. For this reason, the negative removal efficiency for selenium was kept to provide a conservative method of calculating the AHL.

### ***Allowable Headworks Loading Calculations***

AHL calculations were performed for the applicable criteria of water quality and unit operation inhibition. The City's WWTF is a lagoon system and, therefore, does not regularly waste its sludge. For this reason, AHL calculations were not performed based on sludge quality. In addition, the WWTF is not currently regulated for air pollution and does not have required air emission standards. Consequently, air quality-based AHLs were not developed in this analysis.

### **Water Quality-based Allowable Headworks Loadings**

Though the City's NPDES Permit does not specifically list pollutant concentrations for many of the POCs for the industrial pretreatment program, the Permit does require that "no waste shall be discharged or activities conducted that cause or contribute to a violation of water quality standards." Because the City's effluent is considered indirect discharge, there is no mixing zone study available. For this reason, groundwater quality standards were used in developing the water quality-based AHLs. Tables 1 and 3 from OAR 340-040-0030 were used as reference levels for the available POCs. For POCs that did not have reference levels available in OAR 340-040-0030, the federal Water Quality Criteria for Human Health were used. Table 2 shows the water quality reference levels used for determining the AHL.

**Table 2**  
**Groundwater Quality Reference Levels**

<b>Pollutant</b>	<b>Groundwater Quality Criteria (µg/L)</b>
Antimony	5.1
Arsenic	50
Barium	1,000
Cadmium	10
Chromium	50

Pollutant	Groundwater Quality Criteria (µg/L)
Copper	1,000
Cyanide	130
Iron	300
Lead	50
Mercury	2
Molybdenum	N/A
Nickel	140
Selenium	10
Silver	50
Thallium	0.043
Zinc	2,100

µg/L = micrograms per liter

Two different equations are typically used for determining the AHL based on water quality criteria. One of these equations is more adapted to direct discharge to a stream and requires the receiving stream background concentration and flow rate. The other equation (Equation 2) allows the calculation of the AHL based on an NPDES Permit limit. Though the City's current NPDES Permit does not have limits set for the POCs, Equation 2 was used to determine the water quality AHLs by substituting the groundwater quality reference levels on Table 2 for the NPDES Permit limits, as seen in Equation 2 below.

#### Equation 2: Water Quality-Based AHL Formula

$$AHL = \frac{(8.34)(C_{GWR})(Q_{WWTF})}{(1 - R_{WWTF})}$$

Where:

AHL = AHL based on groundwater quality reference levels

$C_{GWR}$  = Groundwater quality reference levels

$Q_{WWTF}$  = WWTF average flow rate, million gallons per day (MGD)

$R_{WWTF}$  = WWTF removal efficiency from headworks to plant effluent, as decimal

8.34 = Conversion factor

#### Inhibition-based Allowable Headworks Loadings

Though the WWTF has not yet had any reported significant disruptions of biological processes (inhibition) due to pollutant levels in the wastewater, inhibition-based AHLs developed to help protect future pollutant loadings from negatively impacting treatment operations. Since the WWTF has not experienced past inhibition, there are no site-specific inhibition concentrations to use for AHL calculations. Due to this lack of site-specific inhibition concentrations, literature concentrations from Attachment G of the EPA Local Limits Development Guidance were used. Though the City's WWTF is a lagoon process, inhibition concentrations for an activated sludge process were used due to the lack of available lagoon inhibition concentrations and the



conservative nature of the activated sludge inhibition values. Equation 3 was used to calculate the AHL for treatment inhibition.

**Equation 3: AHL for Treatment Inhibition**

$$AHL = \frac{8.34(C_{INHIB})(Q_{WWTF})}{1 - R_{WWTF}}$$

Where:

*AHL* = Allowable headworks loading for activated sludge inhibition (pounds per day [lbs/day])

*C<sub>INHIB</sub>* = Concentration of pollutant for inhibition (mg/L)

*Q<sub>WWTF</sub>* = WWTF average flow rate (MGD)

*R<sub>WWTF</sub>* = Removal efficiency of pollutant through primary treatment (as decimal)

**Maximum Allowable Headworks Loading**

The MAHL for any given POC is the lowest AHL from those calculated for that pollutant. MAHLs for the POCs were calculated for both Plants 1 and 2 by calculating AHLs for both plants. Table 3 shows the AHL from each criterion and the MAHL. This table also shows the current loading at the headworks divided by the MAHL. Inhibition AHLs were not calculated for selenium and silver because literature inhibition concentrations were not available for these POCs.

**TABLE 3  
MAXIMUM ALLOWABLE HEADWORKS LOADING DETERMINATION**

Pollutant	Average Loading at Headworks (lbs/day)	Pass Through AHL (lbs/day)	Inhibition AHL (lbs/day)	MAHL (lbs/day)	Average Loading vs. MAHL (percent)
<b>Plant 1</b>					
Arsenic	0.018	0.610	0.988	0.610	3
Cadmium	0.001	0.501	18.01	0.501	0
Chromium	0.011	1.312	3.958	1.312	1
Copper	0.120	39.3	0.972	0.972	12
Cyanide	0.024	0.647	0.706	0.647	4
Lead	0.005	1.282	2.591	1.282	0
Mercury	0.000	0.086	1.850	0.086	0
Nickel	0.014	1.322	1.597	1.322	1
Selenium	0.006	0.037	NA	0.037	16
Silver	0.001	0.596	NA	0.596	0
Zinc	0.597	95.8	1.461	1.461	41
<b>Plant 2</b>					
Arsenic	0.010	0.243	0.406	0.243	4
Cadmium	0.000	0.230	12.1	0.230	0
Chromium	0.007	0.707	0.841	0.707	1

Pollutant	Average Loading at Headworks (lbs/day)	Pass Through AHL (lbs/day)	Inhibition AHL (lbs/day)	MAHL (lbs/day)	Average Loading vs. MAHL (percent)
Copper	0.069	20.7	0.530	0.530	13
Cyanide	0.014	0.547	0.484	0.484	3
Lead	0.003	0.185	1.635	0.185	2
Mercury	0.000	0.051	1.146	0.051	0
Nickel	0.008	0.655	1.118	0.655	1
Selenium	0.003	0.034	NA	0.034	10
Silver	0.000	0.633	NA	0.633	0
Zinc	0.345	26.1	0.814	0.814	42

### Maximum Allowable Industrial Loading

Local limits are developed by multiplying MAHL times a safety factor then subtracting the uncontrolled loading (or residential and unregulated commercial loading) as well as any loading that the City would like to reserve for future industries that may move to the area (see Equation 4).

#### Equation 4: Maximum Allowable Industrial Loading Formula

$$MAIL = MAHL(1 - SF) - (L_{UNC} + HW + GA)$$

Where:

MAIL = Maximum allowable industrial loading (lbs/day)

MAHL = Maximum allowable headworks loading (lbs/day)

SF = Safety factor (decimal)

L<sub>UNC</sub> = Loading from uncontrolled sources or background (lbs/day)

HW = Loading from hauled waste (lbs/day) (Assumed to be zero for Prineville)

GA = Growth allowance (lbs/day)

The result of this calculation is the total maximum industrial loading for all current industries in pounds per day. Table 4 shows these calculations for the POCs.

**TABLE 4  
MAXIMUM ALLOWABLE INDUSTRIAL LOADING CALCULATIONS**

Pollutant	Uncontrolled Loading (lbs/day)	Future Growth Allocation (percent)	Safety Factor (percent)	Maximum Industrial Loading (lbs/day)
<b>Plant 1</b>				
Arsenic	0.072	30	10	0.293
Cadmium	0.001	30	10	0.300
Chromium	0.018	30	10	0.769
Copper	0.215	30	10	0.368
Cyanide	0.014	30	10	0.374

Pollutant	Uncontrolled Loading (lbs/day)	Future Growth Allocation (percent)	Safety Factor (percent)	Maximum Industrial Loading (lbs/day)
Lead	0.013	30	10	0.756
Mercury	0.000	30	10	0.051
Nickel	0.061	30	10	0.732
Selenium	0.006	30	10	0.017
Silver	0.002	30	10	0.356
Zinc	0.523	30	10	0.304
<b>Plant 2</b>				
Arsenic	0.042	30	10	0.104
Cadmium	0.000	30	10	0.138
Chromium	0.010	30	10	0.414
Copper	0.124	30	10	0.194
Cyanide	0.355	30	10	0.282
Lead	0.008	30	10	0.103
Mercury	0.000	30	10	0.031
Nickel	0.035	30	10	0.357
Selenium	0.003	30	10	0.017
Silver	0.001	30	10	0.378
Zinc	0.331	30	10	0.157

The future growth allocation is based on the anticipated growth projections for the City of Prineville as presented in the 2018 Wastewater Facilities Plan (WWFP). The WWFP took into account projected growth from 2017 to 2037, along with anticipated improvements and urban growth boundary connections during the same time period. In addition to the future growth allocation percentage, a 10 percent safety factor was used for all parameters based on the EPA’s minimum recommendation. The minimum recommended safety factor was used due to the conservative approaches taken throughout the calculation process as previously mentioned in this document.

### **Local Limits Distribution**

Typical methods for allocating local limits to the City’s controlled dischargers are outlined in the EPA Local Limits Development Guidelines. In the City’s situation, uniformly allocating all pollutants to each of the IUs is preferred due to the ease of administrating the local limits. In addition, the discharges from both SIUs is similar enough in composition that developing limits based on contributory flow would not be effective. Equation 5 shows the formula used to determine this distribution.

**Equation 5: Uniform Concentration Limit**

$$C_{Lim} = \frac{MAIL}{Q_{CONT} \times 8.34}$$

Where:

$C_{Lim}$  = Concentration limit for a given industrial user (mg/L)

$MAIL$  = Maximum allowable industrial loading (lbs/day)

$Q_{CONT}$  = Total flow rate for all industrial users (MGD)

Table 5 contains a summary of the suggested local limits based on the calculations performed using Equation 5.

**TABLE 5  
SUGGESTED LOCAL LIMITS**

<b>Pollutant</b>	<b>Limit (mg/L)</b>
Arsenic	0.54
Cadmium	0.72
Chromium	2.16
Copper	1.01
Cyanide	1.15
Lead	0.54
Mercury	0.16
Nickel	1.86
Selenium	0.05
Silver	1.09
Zinc	0.82

Based on the results from the City’s sampling results, there do not appear to be any existing IUs that will have trouble meeting any of these calculated local limits as long as existing site pretreatment processes and BMPs continue to be properly maintained and operated. When comparing the suggested local limits to the monitoring results of the City’s SIUs, most average SIU POC concentrations were less than 5 percent of the suggested local limits, with most maximum POC concentrations below 10 percent of the suggested local limits. Zinc was the only POC that consistently had higher SIU concentrations, with SIU averages of approximately 20 percent of the suggested local limit.

***Additional Recommendations***

**Municipal Code Modifications**

The City’s municipal code will require modifications to incorporate the new numeric local limits. During the initial stages of the development of Prineville’s IPP and Local Limits, Chapter 53 of the City’s municipal code was written to establish legal authority for the IPP. Though Chapter 53 implements the City’s IPP and Local Limits, the City’s preexisting sewer code, Chapter 51, was never updated to reflect the addition of Chapter 53 nor the development of these Local Limits. The City is currently in the process of updating Chapter 51 of its municipal code to reflect the implementation of Chapter 53. In addition, Chapter 53 will be updated to include the City of

Prineville's Local Limits, and a chapter will be written to address the implementation of an extra strength charge for users who discharge wastewater with concentrations of BOD<sub>5</sub> or TSS that are higher than 400 mg/L.

### **Fats, Oils, and Grease**

Historically, the City of Prineville has not had concerns with FOG in the collection system or at the WWTF. However, during the analysis of the industrial user survey results, it was unclear whether some restaurants had properly maintained grease traps and/or grease interceptors. It is recommended that the City follow up with these restaurants to ensure that properly maintained pretreatment devices (grease trap or grease interceptor as applicable) are implemented at these restaurants to help protect the collection system and WWTF from FOG.

### **Amalgam**

There are dentist offices in Prineville that produce wastewater containing amalgam. Amalgam is an alloy of mercury and silver that is used in the dental business. Based on the wastewater survey results, the dentist offices in Prineville have regularly maintained amalgam separators. It is recommended that the City require periodic documentation of the maintenance performed on the amalgam separators to help ensure the proper function of the separators.

### **Conclusion**

With the development of local limits, the City can now update its municipal code and develop protocol for administering its pretreatment program. These limits will be used when issuing IU wastewater permits under the pretreatment program. These local limits will need to be reviewed and may be updated if the City's industrial growth exceeds that planned for during the development of these limits.



# Appendices Table of Contents

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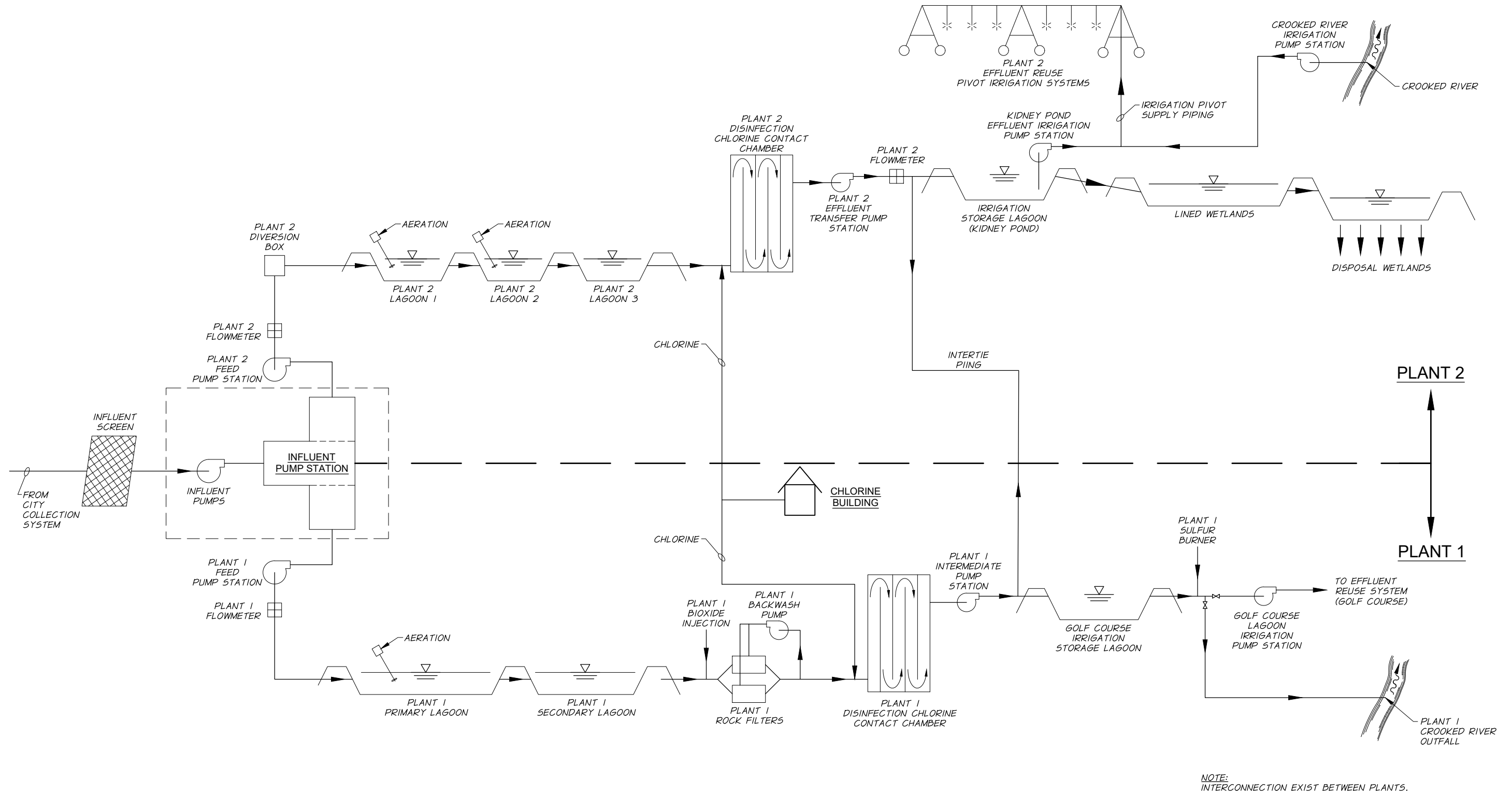
- Appendix A Treatment Process Flow Schematic
- Appendix B Oregon Administrative Rules Water Quality Tables
- Appendix C Wastewater Sampling Results

# **APPENDIX A**

## **Treatment Process Flow Schematic**

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NOTE: INTERCONNECTION EXIST BETWEEN PLANTS.

	<p>CITY OF PRINEVILLE, OREGON LOCAL LIMITS REPORT</p> <p><b>TREATMENT PROCESS FLOW SCHEMATIC</b></p>	<p><b>FIGURE 1</b></p>
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**APPENDIX B**  
**Oregon Administrative Rules**  
**Water Quality Tables**

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# OAR 340-041-8033

## Table 30

### Aquatic Life Water Quality Criteria for Toxic Pollutants

The concentration for each compound listed in Table 30 is a criterion established for waters of the state in order to protect aquatic life. The aquatic life criteria apply to waterbodies where the protection of fish and aquatic life is a designated use. All values are expressed as micrograms per liter ( $\mu\text{g/L}$ ). Compounds are listed in alphabetical order with the corresponding information: the Chemical Abstract Service (CAS) number, whether there is a human health criterion for the pollutant (i.e. “y”= yes, “n” = no), and the associated aquatic life freshwater and saltwater acute and chronic criteria. *Italicized* pollutants are not identified as priority pollutants by EPA. Dashes in the table column indicate that there is no aquatic life criterion.

Unless otherwise noted in the table below, the acute criterion is the Criterion Maximum Concentration (CMC) applied as a one-hour average concentration, and the chronic criterion is the Criterion Continuous Concentration (CCC) applied as a 96-hour (4 days) average concentration. The CMC and CCC criteria may not be exceeded more than once every three years. Footnote A, associated with eleven pesticide pollutants in Table 30, describes the exception to the frequency and duration of the toxics criteria stated in this paragraph.

<b>OAR 340-041-8033</b>							
<b>Table 30</b>							
<b>Aquatic Life Water Quality Criteria for Toxic Pollutants</b>							
No.	Pollutant	CAS Number	Human Health Criterion	Freshwater ( $\mu\text{g/L}$ )		Saltwater ( $\mu\text{g/L}$ )	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
1	Aldrin	309002	y	3 <sup>A</sup>	--	1.3 <sup>A</sup>	--
<sup>A</sup> See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.							
2	<i>Alkalinity</i>		n	--	20,000 <sup>B</sup>	--	--
<sup>B</sup> Criterion shown is the minimum (i.e. CCC in water may not be below this value in order to protect aquatic life).							

# OAR 340-041-8033

## Table 30

### Aquatic Life Water Quality Criteria for Toxic Pollutants

No.	Pollutant	CAS Number	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
3	Ammonia	7664417	n	<p>The ammonia criteria are pH and temperature dependent — See ammonia criteria Tables 30(a)-(c) at end of Table 30.<sup>M</sup></p>		<p>The ammonia criteria are pH, temperature and salinity dependent. Values for saltwater criteria (total ammonia) can be calculated from the tables specified in Ambient Water Quality Criteria for Ammonia (Saltwater)—1989 (EPA 440/5-88-004) See DEQ’s calculator for calculating saltwater ammonia criteria at:  <a href="http://www.deq.state.or.us/wq/standards/toxics.htm">http://www.deq.state.or.us/wq/standards/toxics.htm</a></p>	
<p><sup>M</sup> The acute criteria in Table 30(a) apply in waterbodies where salmonids are a designated use in OAR 340-041-0101 through OAR 340-041-0340. The acute criteria in Table 30(b) apply in waterbodies where salmonids are not a designated use. The chronic criteria in Table 30(c) apply where fish and aquatic life is a designated use. It is not necessary to account for the presence or absence of salmonids or the presence of any early life stage of fish for the chronic criteria. Refer to DEQ’s beneficial use website at: <a href="http://www.deq.state.or.us/wq/standards/uses.htm">http://www.deq.state.or.us/wq/standards/uses.htm</a> for additional information on salmonid beneficial use designations, including tables and maps.</p>							
4	Arsenic	7440382	y	340 <sup>C, D</sup>	150 <sup>C, D</sup>	69 <sup>C, D</sup>	36 <sup>C, D</sup>
<p><sup>C</sup> Criterion is expressed in terms of “dissolved” concentrations in the water column.  <sup>D</sup> Criterion is applied as total inorganic arsenic (i.e. arsenic (III) + arsenic (V)).</p>							
5	BHC Gamma (Lindane)	58899	y	0.95	0.08 <sup>A</sup>	0.16 <sup>A</sup>	--
<p><sup>A</sup> See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.</p>							
6	Cadmium	7440439	n	See E	See C, F	40 <sup>C</sup>	8.8 <sup>C</sup>
<p><sup>C</sup> Criterion is expressed in terms of “dissolved” concentrations in the water column.</p>							



# OAR 340-041-8033

## Table 30

### Aquatic Life Water Quality Criteria for Toxic Pollutants

No.	Pollutant	CAS Number	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
<p><sup>E</sup> The freshwater criterion for this metal is expressed as “total recoverable” and is a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded endnote E at bottom of Table 30.</p> <p><sup>F</sup> The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded endnote F at bottom of Table 30.</p>							
7	Chlordane	57749	y	2.4 <sup>A</sup>	0.0043 <sup>A</sup>	0.09 <sup>A</sup>	0.004 <sup>A</sup>
<p><sup>A</sup> See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.</p>							
8	Chloride	16887006	n	860,000	230,000	--	--
9	Chlorine	7782505	n	19	11	13	7.5
10	Chlorpyrifos	2921882	n	0.083	0.041	0.011	0.0056
11	Chromium III	16065831	n	See C, F	See C, F	--	--
<p><sup>C</sup> Criterion is expressed in terms of “dissolved” concentrations in the water column.</p> <p><sup>F</sup> The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded endnote F at bottom of Table 30.</p>							
12	Chromium VI	18540299	n	16 <sup>C</sup>	11 <sup>C</sup>	1100 <sup>C</sup>	50 <sup>C</sup>
<p><sup>C</sup> Criterion is expressed in terms of “dissolved” concentrations in the water column.</p>							
13	Copper	7440508	y	See C, N	See C, N	4.8 <sup>C</sup>	3.1 <sup>C</sup>
<p><sup>C</sup> Criterion is expressed in terms of “dissolved” concentrations in the water column.</p> <p><sup>N</sup> The freshwater criterion for copper is a function of the concentration of ions, alkalinity, organic carbon, pH and temperature in the water column. To calculate the criterion, use the Biotic Ligand Model referenced in endnote N at the bottom of Table 30. The acute copper criterion (CMC) is applied as a one-hour average concentration. The chronic criterion (CCC) is applied as a 96-hour (4 days) average concentration. See endnote N also for procedures and information.</p>							

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## Table 30

### Aquatic Life Water Quality Criteria for Toxic Pollutants

No.	Pollutant	CAS Number	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
14	Cyanide	57125	y	22 <sup>J</sup>	5.2 <sup>J</sup>	1 <sup>J</sup>	1 <sup>J</sup>
<sup>J</sup> This criterion is expressed as µg free cyanide (CN)/L.							
15	DDT 4,4'	50293	y	1.1 <sup>A,G</sup>	0.001 <sup>A,G</sup>	0.13 <sup>A,G</sup>	0.001 <sup>A,G</sup>
<sup>A</sup> See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion. <sup>G</sup> This criterion applies to DDT and its metabolites (i.e. the total concentration of DDT and its metabolites should not exceed this value).							
16	Demeton	8065483	n	--	0.1	--	0.1
17	Dieldrin	60571	y	0.24	0.056	0.71 <sup>A</sup>	0.0019 <sup>A</sup>
<sup>A</sup> See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.							
18	Endosulfan	115297	n	0.22 <sup>A,H</sup>	0.056 <sup>A,H</sup>	0.034 <sup>A,H</sup>	0.0087 <sup>A,H</sup>
<sup>A</sup> See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion. <sup>H</sup> This value is based on the criterion published in Ambient Water Quality Criteria for Endosulfan (EPA 440/5-80-046) and should be applied as the sum of alpha- and beta-endosulfan.							
19	Endosulfan Alpha	959988	y	0.22 <sup>A</sup>	0.056 <sup>A</sup>	0.034 <sup>A</sup>	0.0087 <sup>A</sup>
<sup>A</sup> See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.							
20	Endosulfan Beta	33213659	y	0.22 <sup>A</sup>	0.056 <sup>A</sup>	0.034 <sup>A</sup>	0.0087 <sup>A</sup>
<sup>A</sup> See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.							
21	Endrin	72208	y	0.086	0.036	0.037 <sup>A</sup>	0.0023 <sup>A</sup>
<sup>A</sup> See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.							
22	Guthion	86500	n	--	0.01	--	0.01

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## Table 30

### Aquatic Life Water Quality Criteria for Toxic Pollutants

No.	Pollutant	CAS Number	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
23	Heptachlor	76448	y	0.52 <sup>A</sup>	0.0038 <sup>A</sup>	0.053 <sup>A</sup>	0.0036 <sup>A</sup>
<sup>A</sup> See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.							
24	Heptachlor Epoxide	1024573	y	0.52 <sup>A</sup>	0.0038 <sup>A</sup>	0.053 <sup>A</sup>	0.0036 <sup>A</sup>
<sup>A</sup> See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.							
25	Iron (total)	7439896	n	--	1000	--	--
26	Lead	7439921	n	See C , F	See C , F	210 <sup>C</sup>	8.1 <sup>C</sup>
<sup>C</sup> Criterion is expressed in terms of "dissolved" concentrations in the water column.							
<sup>F</sup> The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded endnote F at bottom of Table 30.							
27	Malathion	121755	n	--	0.1	--	0.1
28	Mercury (total)	7439976	n	2.4	0.012	2.1	0.025
29	Methoxychlor	72435	y	--	0.03	--	0.03
30	Mirex	2385855	n	--	0.001	--	0.001
31	Nickel	7440020	y	See C , F	See C , F	74 <sup>C</sup>	8.2 <sup>C</sup>
<sup>C</sup> Criterion is expressed in terms of "dissolved" concentrations in the water column.							
<sup>F</sup> The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded endnote F at bottom of Table 30.							
32	Parathion	56382	n	0.065	0.013	--	--
33	Pentachlorophenol	87865	y	See I	See I	13	7.9
<sup>I</sup> Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: CMC=(exp(1.005(pH)-4.869)); CCC=exp(1.005(pH)-5.134).							
34	Phosphorus Elemental	7723140	n	--	--	--	0.1

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## Table 30

### Aquatic Life Water Quality Criteria for Toxic Pollutants

No.	Pollutant	CAS Number	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
35	Polychlorinated Biphenyls (PCBs)	NA	y	2 <sup>K</sup>	0.014 <sup>K</sup>	10 <sup>K</sup>	0.03 <sup>K</sup>
<sup>K</sup> This criterion applies to total PCBs (e.g. determined as Aroclors or congeners)							
36	Selenium	7782492	y	See C , L	4.6 <sup>C</sup>	290 <sup>C</sup>	71 <sup>C</sup>
<sup>C</sup> Criterion is expressed in terms of “dissolved” concentrations in the water column.							
<sup>L</sup> The CMC=(1/[(f1/CMC1)+(f2/CMC2)]µg/L) * CF where f1 and f2 are the fractions of total selenium that are treated as selenite and selenate, respectively, and CMC1 and CMC2 are 185.9 µg/L and 12.82 µg/L, respectively. See expanded endnote F for the Conversion Factor (CF) for selenium.							
37	Silver	7440224	n	See C , F	0.10 <sup>C</sup>	1.9 <sup>C</sup>	--
<sup>C</sup> Criterion is expressed in terms of “dissolved” concentrations in the water column.							
<sup>F</sup> The freshwater acute criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded endnote F at bottom of Table 30.							
38	Sulfide Hydrogen Sulfide	7783064	n	--	2	--	2
39	Toxaphene	8001352	y	0.73	0.0002	0.21	0.0002
40	Tributyltin (TBT)	688733	n	0.46	0.063	0.37	0.01
41	Zinc	7440666	y	See C , F	See C , F	90 <sup>C</sup>	81 <sup>C</sup>
<sup>C</sup> Criterion is expressed in terms of “dissolved” concentrations in the water column.							
<sup>F</sup> The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded endnote F at bottom of Table 30.							

## Expanded Endnotes A, E, F, N

### **Endnote A: Alternate Frequency and Duration for Certain Pesticides**

This criterion is based on EPA recommendations issued in 1980 that were derived using guidelines that differed from EPA's 1985 Guidelines which update minimum data requirements and derivation procedures. The CMC may not be exceeded at any time and the CCC may not be exceeded based on a 24-hour average. The CMC may be applied using a one hour averaging period not to be exceeded more than once every three years, if the CMC values given in Table 30 are divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

**Endnote E: Equation for Hardness-Dependent Freshwater Cadmium Acute Criteria**

The freshwater criterion for this metal is expressed as total recoverable with two significant figures, and is a function of hardness (mg/L) in the water column. Criteria values based on hardness are calculated using the following formula (CMC refers to the acute criterion):

$$\text{CMC} = (\exp(m_A * [\ln(\text{hardness})] + b_A))$$

<b>Chemical</b>	<b>m<sub>A</sub></b>	<b>b<sub>A</sub></b>	<b>m<sub>C</sub></b>	<b>b<sub>C</sub></b>
Cadmium	1.128	-3.828	N/A	N/A

**Endnote F: Equations for Hardness-Dependent Freshwater Metals Criteria and Conversion Factor Table**

The freshwater criterion for this metal is expressed as dissolved with two significant figures, and is a function of hardness (mg/L) in the water column. Criteria values based on hardness are calculated using the following formulas (CMC refers to the acute criterion; CCC refers to the chronic criterion):

$$\text{CMC} = (\exp(m_A * [\ln(\text{hardness})] + b_A)) * \text{CF}$$

$$\text{CCC} = (\exp(m_C * [\ln(\text{hardness})] + b_C)) * \text{CF}$$

“CF” is the conversion factor used for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column.

<b>Values for Calculating Hardness-Dependent Metals Criteria</b>				
<b>Chemical</b>	<b>m<sub>A</sub></b>	<b>b<sub>A</sub></b>	<b>m<sub>C</sub></b>	<b>b<sub>C</sub></b>
Cadmium	N/A	N/A	0.7409	-4.719
Chromium III	0.8190	3.7256	0.8190	0.6848
Lead	1.273	-1.460	1.273	-4.705
Nickel	0.8460	2.255	0.8460	0.0584
Silver	1.72	-6.59	--	--
Zinc	0.8473	0.884	0.8473	0.884



The conversion factors (CF) below must be used in the equations above for the hardness-dependent metals in order to convert total recoverable metals criteria to dissolved metals criteria. For metals that are not hardness-dependent (i.e. arsenic, chromium VI, selenium, and silver (chronic)), or are saltwater criteria, the criterion value associated with the metal in Table 30 already reflects a dissolved criterion based on its conversion factor below.

<b>Conversion Factor (CF) Table for Dissolved Metals</b>				
<b>Chemical</b>	<b>Freshwater</b>		<b>Saltwater</b>	
	<b>Acute</b>	<b>Chronic</b>	<b>Acute</b>	<b>Chronic</b>
Arsenic	1.000	1.000	1.000	1.000
Cadmium	N/A	$1.101672 - [(\ln \text{hardness})(0.041838)]$	0.994	0.994
Chromium III	0.316	0.860	--	--
Chromium VI	0.982	0.962	0.993	0.993
Copper	N/A	N/A	0.83	0.83
Lead	$1.46203 - [(\ln \text{hardness})(0.145712)]$	$1.46203 - [(\ln \text{hardness})(0.145712)]$	0.951	0.951
Nickel	0.998	0.997	0.990	0.990
Selenium	0.996	0.922	0.998	0.998
Silver	0.85	0.85	0.85	--
Zinc	0.978	0.986	0.946	0.946

## Endnote N: Deriving freshwater copper criteria

The freshwater copper criteria at any time are the Biotic Ligand Model (BLM) derived Instantaneous Water Quality Criteria (IWQC) output based on a concurrently measured set of model input parameter values. The Biotic Ligand Model uses multiple ambient water quality parameters to derive 1-hour acute exposure (CMC) and 96-hour chronic exposure (CCC) water quality criteria (IWQC) for copper based on the site specific water chemistry that determines the toxicity of copper to aquatic life. If measured data for one or more of the model input parameters used to derive the acute and chronic IWQC is not available, the procedures in section (1) or (2) of this endnote will be used as specified to substitute an estimate or a default value for the missing input parameter. BLM results (IWQC) based on sufficient measured input parameter data are more accurate and supersede results based on estimates or default values. The acceptable BLM software to calculate the IWQC include version 2.2.3, referenced in “Aquatic Life Ambient Freshwater Quality Criteria – Copper”: EPA-822-R-07-001, February 2007, and version 2.2.4. The criteria are expressed as dissolved copper in micrograms per liter (to the nearest one-tenth).

### (1) Input Parameter Substitution and Estimation Procedures to Derive BLM Criteria (IWQC)

If the measured value for any input parameter needed to derive an IWQC using the BLM is not available, DEQ will substitute an estimated input parameter value according to the procedures described in this section [Endnote N (1)]. If the data required to determine the estimated parameter value is not available, DEQ will use default values derived according to the procedures in Endnote N (2).

(a) Total recoverable concentration measurements will be substituted for dissolved concentration measurements that are not available. For alkalinity, calcium, chloride, magnesium, potassium, sodium and sulfate, total recoverable concentration measurements will be used as a direct substitute for dissolved concentration measurements. Total organic carbon (TOC) measurements will be multiplied by 0.83 to convert the TOC value to an equivalent dissolved organic carbon (DOC) value; except where sufficient TOC and DOC data are available for a site, DEQ will calculate and apply a site-specific translator in place of 0.83 to convert TOC values to DOC for use in the BLM.

(b) Alkalinity, calcium, chloride, magnesium, potassium, sodium and sulfate:  
If data for any of these BLM input parameters are missing from a particular dataset, DEQ will estimate its value based on the relationship of the ion or alkalinity to specific conductance measurements for that data set using the regression analysis equations in Table 1. Specific conductance measurements must be concurrent with the other BLM input parameters dataset.

Table N-1	
Parameter	Regression Equation
Alkalinity	$Alk. = \exp^{(0.88 \cdot [\ln(\text{SpC})] - 0.41)}$
Calcium	$Ca = \exp^{(0.96 \cdot [\ln(\text{SpC})] - 2.29)}$
Chloride	$Cl = \exp^{(1.15 \cdot [\ln(\text{SpC})] - 3.82)}$
Magnesium	$Mg = \exp^{(0.91 \cdot [\ln(\text{SpC})] - 3.09)}$
Potassium	$K = \exp^{(0.84 \cdot [\ln(\text{SpC})] - 3.74)}$
Sodium	$Na = \exp^{(0.86 \cdot [\ln(\text{SpC})] - 2.22)}$
Sulfate	$SO_4 = \exp^{(1.45 \cdot [\ln(\text{SpC})] - 5.59)}$

Where, “SpC” is a measurement of specific conductance in  $\mu\text{mhos/cm}$ , “ln” is the natural logarithm, and “exp” is a mathematical constant that is the base of the natural logarithm.

(c) pH

If concurrent pH data is missing from the sample dataset, DEQ will use a representative pH value determined by interpolating from data available for the site or proximate monitoring locations where conditions (such as type of water body, stream flow and geology) are similar to the site. DEQ will use the available data and methods to produce the best practicable estimate of pH for the site and time for which the IWQC is being derived.

(d) Temperature

If concurrent temperature data is missing from the sample dataset, DEQ will use a monthly mean temperature based on data available for the site or proximate monitoring locations where conditions (such as type of water body and stream flow) are similar to the site.

(e) Humic Acid

If sufficient high quality data on the percentage of humic acid as a proportion of DOC is available for a site, DEQ will use that value in the BLM in place of the default value of 10% used in the model.

(2) Default Action Values

If the measured value for DOC, alkalinity, calcium, chloride, magnesium, potassium, sodium or sulfate is not available to derive an IWQC using the BLM, and the parameter value cannot be estimated as specified in section (1) above, DEQ will use a conservative input value for the missing parameter as described in this section [Endnote N (2)] to derive a default action value using the Biotic Ligand Model. The default action value will be used for Clean Water Act purposes until measured or estimated input parameter data are available to derive accurate copper criteria (IWQC) based on site specific water chemistry.

(a) The default input parameter values for DOC, alkalinity calcium, chloride, magnesium, potassium, sodium and sulfate will be the percentile value from the distribution of the high quality data available for surface waters in the region as shown in Table N-2.

<b>Table N-2 Percentile of data distribution to be used as default value by region</b>		
<b>Region</b>	<b>DOC percentile</b>	<b>Alkalinity and ions percentile</b>
Willamette	20 <sup>th</sup>	20 <sup>th</sup>
Coastal	20 <sup>th</sup>	20 <sup>th</sup>
Cascades	20 <sup>th</sup>	20 <sup>th</sup>
Eastern	15 <sup>th</sup>	15 <sup>th</sup>
Columbia River	20 <sup>th</sup>	20 <sup>th</sup>

(b) The regional default values for each parameter and region will be updated periodically as additional high quality data becomes available and is added to DEQ's database.

(c) The regional default values for each parameter are available on DEQ's website.

(d) The regions listed in Table N-2 are comprised of the following EPA Level III ecoregions or waterbody:

(i) Willamette: the Willamette Valley

(ii) Coastal: Coast Range and Klamath Mountains

(iii) Cascades: Cascades

(iv) Eastern: Eastern Cascades Slopes and Foothills, Columbia Plateau, Blue Mountains, Northern Basin and Range and Snake River Plain

(v) Columbia River: Columbia River mainstem in Oregon

### (3) General Policies

(a) The copper BLM derives instantaneous criteria results (IWQC) that vary at a site over time reflecting the effect of local water chemistry on copper toxicity to aquatic organisms. DEQ will apply the BLM criteria for Clean Water Act purposes to protect the water body during the most bioavailable or toxic conditions.

(b) For assessing waters of the state, DEQ will use approaches that give preference to the use of BLM criteria derived with site-specific measured input parameter data.

**Table 30(a): Ammonia Acute Criteria Values (One-hour Average)—Salmonid Species Present**  
 Temperature and pH-Dependent and expressed as Total Ammonia Nitrogen (mg/L TAN)

Criteria cannot be exceeded more than once every three years

$$Acute\ Criterion = MIN \left( \left( \frac{0.275}{1 + 10^{7.204 - pH}} + \frac{39.0}{1 + 10^{pH - 7.204}} \right), \left( 0.7249 \times \left( \frac{0.0114}{1 + 10^{7.204 - pH}} + \frac{1.6181}{1 + 10^{pH - 7.204}} \right) \times (23.12 \times 10^{0.036 \times (20 - T)}) \right) \right)$$

**Temperature (°C)**

pH	0-14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	33	33	32	29	27	25	23	21	19	18	16	15	14	13	12	11	9.9
6.6	31	31	30	28	26	24	22	20	18	17	16	14	13	12	11	10	9.5
6.7	30	30	29	27	24	22	21	19	18	16	15	14	13	12	11	9.8	9.0
6.8	28	28	27	25	23	21	20	18	17	15	14	13	12	11	10	9.2	8.5
6.9	26	26	25	23	21	20	18	17	15	14	13	12	11	10	9.4	8.6	7.9
7.0	24	24	23	21	20	18	17	15	14	13	12	11	10	9.4	8.6	8.0	7.3
7.1	22	22	21	20	18	17	15	14	13	12	11	10	9.3	8.5	7.9	7.2	6.7
7.2	20	20	19	18	16	15	14	13	12	11	9.8	9.1	8.3	7.7	7.1	6.5	6.0
7.3	18	18	17	16	14	13	12	11	10	9.5	8.7	8.0	7.4	6.8	6.3	5.8	5.3
7.4	15	15	15	14	13	12	11	9.8	9.0	8.3	7.7	7.0	6.5	6.0	5.5	5.1	4.7
7.5	13	13	13	12	11	10	9.2	8.5	7.8	7.2	6.6	6.1	5.6	5.2	4.8	4.4	4.0
7.6	11	11	11	10	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5
7.7	9.6	9.6	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5	3.2	3.0
7.8	8.1	8.1	7.9	7.2	6.7	6.1	5.6	5.2	4.8	4.4	4.0	3.7	3.4	3.2	2.9	2.7	2.5
7.9	6.8	6.8	6.6	6.0	5.6	5.1	4.7	4.3	4.0	3.7	3.4	3.1	2.9	2.6	2.4	2.2	2.1
8.0	5.6	5.6	5.4	5.0	4.6	4.2	3.9	3.6	3.3	3.0	2.8	2.6	2.4	2.2	2.0	1.9	1.7
8.1	4.6	4.6	4.5	4.1	3.8	3.5	3.2	3.0	2.7	2.5	2.3	2.1	2.0	1.8	1.7	1.5	1.4
8.2	3.8	3.8	3.7	3.5	3.1	2.9	2.7	2.4	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2
8.3	3.1	3.1	3.1	2.8	2.6	2.4	2.2	2.0	1.9	1.7	1.6	1.4	1.3	1.2	1.1	1.0	0.96
8.4	2.6	2.6	2.5	2.3	2.1	2.0	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.93	0.86	0.79
8.5	2.1	2.1	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2	1.1	0.98	0.90	0.83	0.77	0.71	0.65
8.6	1.8	1.8	1.7	1.6	1.5	1.3	1.2	1.1	1.0	0.96	0.88	0.81	0.75	0.69	0.63	0.59	0.54
8.7	1.5	1.5	1.4	1.3	1.2	1.1	1.0	0.94	0.87	0.80	0.74	0.68	0.62	0.57	0.53	0.49	0.45
8.8	1.2	1.2	1.2	1.1	1.0	0.93	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.41	0.37
8.9	1.0	1.0	1.0	0.93	0.85	0.79	0.72	0.67	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.32
9.0	0.88	0.88	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.41	0.37	0.34	0.32	0.29	0.27

**Table 30(b): Ammonia Acute Criteria Values (One-hour Average\*)—Salmonid Species Absent**  
 Temperature and pH-Dependent and expressed as Total Ammonia Nitrogen (mg/L TAN)

Criteria cannot be exceeded more than once every three years

$$Acute\ Criterion = 0.7249 \times \frac{0.0114}{1 + 10^{7.204 - pH}} + \frac{1.6181}{1 + 10^{pH - 7.204}} \times MIN(51.93, 23.12 \times 10^{0.036 \times (20 - T)})$$

Temperature (°C)

pH	0-10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	51	48	44	41	37	34	32	29	27	25	23	21	19	18	16	15	14	13	12	11	9.9
6.6	49	46	42	39	36	33	30	28	26	24	22	20	18	17	16	14	13	12	11	10	9.5
6.7	46	44	40	37	34	31	29	27	24	22	21	19	18	16	15	14	13	12	11	9.8	9.0
6.8	44	41	38	35	32	30	27	25	23	21	20	18	17	15	14	13	12	11	10	9.2	8.5
6.9	41	38	35	32	30	28	25	23	21	20	18	17	15	14	13	12	11	10	9.4	8.6	7.9
7.0	38	35	33	30	28	25	23	21	20	18	17	15	14	13	12	11	10	9.4	8.6	7.9	7.3
7.1	34	32	30	27	25	23	21	20	18	17	15	14	13	12	11	10	9.3	8.5	7.9	7.2	6.7
7.2	31	29	27	25	23	21	19	18	16	15	14	13	12	11	9.8	9.1	8.3	7.7	7.1	6.5	6.0
7.3	27	26	24	22	20	18	17	16	14	13	12	11	10	9.5	8.7	8.0	7.4	6.8	6.3	5.8	5.3
7.4	24	22	21	19	18	16	15	14	13	12	11	9.8	9.0	8.3	7.7	7.0	6.5	6.0	5.5	5.1	4.7
7.5	21	19	18	17	15	14	13	12	11	10	9.2	8.5	7.8	7.2	6.6	6.1	5.6	5.2	4.8	4.4	4.0
7.6	18	17	15	14	13	12	11	10	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5
7.7	15	14	13	12	11	10	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5	3.2	2.9
7.8	13	12	11	10	9.3	8.5	7.9	7.2	6.7	6.1	5.6	5.2	4.8	4.4	4.0	3.7	3.4	3.2	2.9	2.7	2.5
7.9	11	9.9	9.1	8.4	7.7	7.1	6.6	3.0	5.6	5.1	4.7	4.3	4.0	3.7	3.4	3.1	2.9	2.6	2.4	2.2	2.1
8.0	8.8	8.2	7.6	7.0	6.4	5.9	5.4	5.0	4.6	4.2	3.9	3.6	3.3	3.0	2.8	2.6	2.4	2.2	2.0	1.9	1.7
8.1	7.2	6.8	6.3	5.8	5.3	4.9	4.5	4.1	3.8	3.5	3.2	3.0	2.7	2.5	2.3	2.1	2.0	1.8	1.7	1.5	1.4
8.2	6.0	5.6	5.2	4.8	4.4	4.0	3.7	3.4	3.1	2.9	2.7	2.4	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2
8.3	4.9	4.6	4.3	3.9	3.6	3.3	3.1	2.8	2.6	2.4	2.2	2.0	1.9	1.7	1.6	1.4	1.3	1.2	1.1	1.0	0.96
8.4	4.1	3.8	3.5	3.2	3.0	2.7	2.5	2.3	2.1	2.0	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.93	0.86	0.79
8.5	3.3	3.1	2.9	2.7	2.4	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2	1.1	0.98	0.90	0.83	0.77	0.71	0.65
8.6	2.8	2.6	2.4	2.2	2.0	1.9	1.7	1.6	1.5	1.3	1.2	1.1	1.0	0.96	0.88	0.81	0.75	0.69	0.63	0.58	0.54
8.7	2.3	2.2	2.0	1.8	1.7	1.6	1.4	1.3	1.2	1.1	1.0	0.94	0.87	0.80	0.74	0.68	0.62	0.57	0.53	0.49	0.45
8.8	1.9	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.93	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.41	0.37
8.9	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.93	0.85	0.79	0.72	0.67	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.32
9.0	1.4	1.3	1.2	1.1	1.0	0.93	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.41	0.37	0.34	0.32	0.29	0.27

**Table 30(c): Ammonia Chronic Criteria Values (30-day Rolling Average\*)**

Temperature and pH-Dependent and expressed as Total Ammonia Nitrogen (mg/L TAN)

\* The highest four-day average within the 30-day averaging period must not be more than 2.5 times the chronic value

Criteria cannot be exceeded more than once every three years

$$\text{Chronic Criterion} = 0.8876 \times \left( \frac{0.0278}{1 + 10^{7.688 - \text{pH}}} + \frac{1.1994}{1 + 10^{\text{pH} - 7.688}} \right) \times (2.126 \times 10^{0.028 \times (20 - \text{MAX}(T,7))})$$

**Temperature (°C)**

pH	0-7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	4.9	4.6	4.3	4.1	3.8	3.6	3.3	3.1	2.9	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.6	1.5	1.5	1.4	1.3	1.2	1.1
6.6	4.8	4.5	4.3	4.0	3.8	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1
6.7	4.8	4.5	4.2	3.9	3.7	3.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1
6.8	4.6	4.4	4.1	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1
6.9	4.5	4.2	4.0	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0
7.0	4.4	4.1	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	0.99
7.1	4.2	3.9	3.7	3.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95
7.2	4.0	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.96	0.90
7.3	3.8	3.5	3.3	3.1	2.9	2.7	2.6	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.97	0.91	0.85
7.4	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.96	0.90	0.85	0.79
7.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.83	0.78	0.73
7.6	2.9	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.6	1.5	1.4	1.4	1.3	1.2	1.1	1.1	0.98	0.92	0.86	0.81	0.76	0.71	0.67
7.7	2.6	2.4	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.94	0.88	0.83	0.78	0.73	0.68	0.64	0.60
7.8	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53
7.9	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53	0.50	0.47
8.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.94	0.88	0.83	0.78	0.73	0.68	0.64	0.60	0.56	0.53	0.50	0.44	0.44	0.41
8.1	1.5	1.5	1.4	1.3	1.2	1.1	1.1	0.99	0.92	0.87	0.81	0.76	0.71	0.67	0.63	0.59	0.55	0.52	0.49	0.46	0.43	0.40	0.38	0.35
8.2	1.3	1.2	1.2	1.1	1.0	0.96	0.90	0.84	0.79	0.74	0.70	0.65	0.61	0.57	0.54	0.50	0.47	0.44	0.42	0.39	0.37	0.34	0.32	0.30
8.3	1.1	1.1	0.99	0.93	0.87	0.82	0.76	0.72	0.67	0.63	0.59	0.55	0.52	0.49	0.46	0.43	0.40	0.38	0.35	0.33	0.31	0.29	0.27	0.26
8.4	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53	0.50	0.47	0.44	0.41	0.39	0.36	0.34	0.32	0.30	0.28	0.26	0.25	0.23	0.22
8.5	0.80	0.75	0.71	0.67	0.62	0.58	0.55	0.51	0.48	0.45	0.42	0.40	0.37	0.35	0.33	0.31	0.29	0.27	0.25	0.24	0.22	0.21	0.20	0.18
8.6	0.68	0.64	0.60	0.56	0.53	0.49	0.46	0.43	0.41	0.38	0.36	0.33	0.31	0.29	0.28	0.26	0.24	0.23	0.21	0.20	0.19	0.18	0.16	0.15
8.7	0.57	0.54	0.51	0.47	0.44	0.42	0.39	0.37	0.34	0.32	0.30	0.28	0.27	0.25	0.23	0.22	0.21	0.19	0.18	0.17	0.16	0.15	0.14	0.13
8.8	0.49	0.46	0.43	0.40	0.38	0.35	0.33	0.31	0.29	0.27	0.26	0.24	0.23	0.21	0.20	0.19	0.17	0.16	0.15	0.14	0.13	0.13	0.12	0.11
8.9	0.42	0.39	0.37	0.34	0.32	0.30	0.28	0.27	0.25	0.23	0.22	0.21	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.11	0.10	0.09
9.0	0.36	0.34	0.32	0.30	0.28	0.26	0.24	0.23	0.21	0.20	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.11	0.10	0.09	0.09	0.08





**OAR 340-041-8033**

**TABLE 31**

**Aquatic Life Water Quality Guidance Values for Toxic Pollutants**

*Effective April 18, 2014*

**Water Quality Guidance Values Summary<sup>A</sup>**

The concentration for each compound listed in Table 31 is a guidance value that DEQ may use in application of Oregon’s Toxic Substances Narrative (340-041-0033(2)) to waters of the state in order to protect aquatic life. All values are expressed as micrograms per liter (µg/L) except where noted. Compounds are listed in alphabetical order with the corresponding EPA number (from National Recommended Water Quality Criteria: 2002, EPA-822-R-02-047), corresponding Chemical Abstract Service (CAS) number, aquatic life freshwater acute and chronic guidance values, and aquatic life saltwater acute and chronic guidance values.

<b>OAR 340-041-8033</b>						
<b>Table 31</b>						
<b>Aquatic Life Water Quality Guidance Values for Toxic Pollutants</b>						
<b>EPA No.</b>	<b>Pollutant</b>	<b>CAS Number</b>	<b>Freshwater</b>		<b>Saltwater</b>	
			<b>Acute</b>	<b>Chronic</b>	<b>Acute</b>	<b>Chronic</b>
56	Acenaphthene	83329	1,700	520	970	710
17	Acrolein	107028	68	21	55	
18	Acrylonitrile	107131	7,550	2,600		
1	Antimony	7440360	9,000	1,600		
19	Benzene	71432	5,300		5,100	700
59	Benzidine	92875	2,500			
3	Beryllium	7440417	130	5.3		
19 B	BHC (Hexachlorocyclohexane-Technical)	319868	100		0.34	
21	Carbon Tetrachloride	56235	35,200		50,000	

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**Table 31**

**Aquatic Life Water Quality Guidance Values for Toxic Pollutants**

EPA No.	Pollutant	CAS Number	Freshwater		Saltwater	
			Acute	Chronic	Acute	Chronic
	Chlorinated Benzenes		250	50	160	129
	Chlorinated naphthalenes		1,600		7.5	
	Chloroalkyl Ethers		238,000			
26	Chloroform	67663	28,900	1,240		
45	Chlorophenol 2-	95578	4,380	2,000		
	Chlorophenol 4-	106489			29,700	
52	Methyl-4-chlorophenol 3-	59507	30			
5a	Chromium (III)	1606583 1			10,300	
109	DDE 4,4'-	72559	1,050		14	
110	DDD 4,4'-	72548	0.06		3.6	
	Diazinon	333415	0.08	0.05		
	Dichlorobenzenes		1,120	763	1,970	
29	Dichloroethane 1,2-	107062	118,000	20,000	113,000	
	Dichloroethylenes		11,600		224,000	
46	Dichlorophenol 2,4-	120832	2,020	365		
31	Dichloropropane 1,2-	78875	23,000	5,700	10,300	3,040
32	Dichloropropene 1,3-	542756	6,060	244	790	
47	Dimethylphenol 2,4-	105679	2,120			
	Dinitrotoluene		330	230	590	370
16	Dioxin (2,3,7,8-TCDD)	1746016	0.01	38 pg/L		
85	Diphenylhydrazine 1,2-	122667	270			

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**Table 31**

**Aquatic Life Water Quality Guidance Values for Toxic Pollutants**

EPA No.	Pollutant	CAS Number	Freshwater		Saltwater	
			Acute	Chronic	Acute	Chronic
33	Ethylbenzene	100414	32,000		430	
86	Fluoranthene	206440	3,980		40	16
	Haloethers		360	122		
	Halomethanes		11,000		12,000	6,400
89	Hexachlorobutadiene	87683	90	9.3	32	
90	Hexachlorocyclopentadiene	77474	7	5.2	7	
91	Hexachloroethane	67721	980	540	940	
93	Isophorone	78591	117,000		12,900	
94	Naphthalene	91203	2,300	620	2,350	
95	Nitrobenzene	98953	27,000		6,680	
	Nitrophenols		230	150	4,850	
26 B	Nitrosamines	3557691 1	5,850		3,300,000	
	Pentachlorinated ethanes		7,240	1,100	390	281
54	Phenol	108952	10,200	2,560	5,800	
	Phthalate esters		940	3	2,944	3.4
	Polynuclear Aromatic Hydrocarbons				300	
	Tetrachlorinated Ethanes		9,320			
37	Tetrachloroethane 1,1,2,2-	79345		2,400	9,020	
	Tetrachloroethanes		9,320			

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**Table 31**

**Aquatic Life Water Quality Guidance Values for Toxic Pollutants**

EPA No.	Pollutant	CAS Number	Freshwater		Saltwater	
			Acute	Chronic	Acute	Chronic
38	Tetrachloroethylene	127184	5,280	840	10,200	450
	Tetrachlorophenol 2,3,5,6					440
12	Thallium	7440280	1,400	40	2,130	
39	Toluene	108883	17,500		6,300	5,000
	Trichlorinated ethanes		18,000			
41	Trichloroethane 1,1,1-	71556			31,200	
42	Trichloroethane 1,1,2-	79005		9,400		
43	Trichloroethylene	79016	45,000	21,900	2,000	
55	Trichlorophenol 2,4,6-	88062		970		

The following chemicals/compounds/classes are of concern due to the potential for toxic effects to aquatic organisms; however, no guidance values are designated. If these compounds are identified in the waste stream, then a review of the scientific literature may be appropriate for deriving guidance values.

- Polybrominated diphenyl ethers (PBDE)
- Polybrominated biphenyls (PBB)
- Pharmaceuticals
- Personal care products
- Alkyl Phenols
- Other chemicals with Toxic effects

**Footnotes:**

A Values in Table 31 are applicable to all basins.

B This number was assigned to the list of non-priority pollutants in National Recommended Water Quality Criteria: 2002 (EPA-822-R-02-047).



# OAR 340-041-8033

## TABLE 40

### Human Health Water Quality Criteria for Toxic Pollutants

*Effective April 18, 2014*

#### Human Health Criteria Summary

The concentration for each pollutant listed in Table 40 was derived to protect Oregonians from potential adverse health impacts associated with long-term exposure to toxic substances associated with consumption of fish, shellfish, and water. The “organism only” criteria are established to protect fish and shellfish consumption and apply to waters of the state designated for fishing. The “water + organism” criteria are established to protect the consumption of drinking water, fish, and shellfish, and apply where both fishing and domestic water supply (public and private) are designated uses. All criteria are expressed as micrograms per liter ( $\mu\text{g/L}$ ), unless otherwise noted. Pollutants are listed in alphabetical order. Additional information includes the Chemical Abstract Service (CAS) number, whether the criterion is based on carcinogenic effects (can cause cancer in humans), and whether there is an aquatic life criterion for the pollutant (i.e. “y”= yes, “n” = no). All the human health criteria were calculated using a fish consumption rate of 175 grams per day unless otherwise noted. A fish consumption rate of 175 grams per day is approximately equal to 23 8-ounce fish meals per month. For pollutants categorized as carcinogens, values represent a cancer risk of one additional case of cancer in one million people (i.e.  $10^{-6}$ ), unless otherwise noted. All metals criteria are for total metal concentration, unless otherwise noted. Italicized pollutants represent non-priority pollutants. The human health criteria revisions established by OAR 340-041-0033 and shown in Table 40 do not become applicable for purposes of ORS chapter 468B or the federal Clean Water Act until approved by EPA pursuant to 40 CFR 131.21 (4/27/2000).

**OAR 340-041-8033**

**Table 40**

**Human Health Water Quality Criteria for Toxic Pollutants**

No.	Pollutant	CAS Number	Carcinogen	Aquatic Life Criterion	Human Health Criteria for the Consumption of:	
					Water + Organism (µg/L)	Organism Only (µg/L)
1	Acenaphthene	83329	n	n	95	99
2	Acrolein	107028	n	n	0.88	0.93
3	Acrylonitrile	107131	y	n	0.018	0.025
4	Aldrin	309002	y	y	0.0000050	0.0000050
5	Anthracene	120127	n	n	2900	4000
6	Antimony	7440360	n	n	5.1	64
7	Arsenic (inorganic) <sup>A</sup>	7440382	y	y	2.1	2.1(freshwater) 1.0 (saltwater)
<sup>A</sup> The arsenic criteria are expressed as total inorganic arsenic. The "organism only" freshwater criterion is based on a risk level of approximately $1 \times 10^{-5}$ , and the "water + organism" criterion is based on a risk level of $1 \times 10^{-4}$ .						
8	Asbestos <sup>B</sup>	1332214	y	n	7,000,000 fibers/L	--
<sup>B</sup> The human health risks from asbestos are primarily from drinking water, therefore no "organism only" criterion was developed. The "water + organism" criterion is based on the Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act.						
9	Barium <sup>C</sup>	7440393	n	n	1000	--
<sup>C</sup> The human health criterion for barium is the same as originally published in the 1976 EPA Red Book which predates the 1980 methodology and did not utilize the fish ingestion BCF approach. This same criterion value was also published in the 1986 EPA Gold Book. Human health risks are primarily from drinking water, therefore no "organism only" criterion was developed. The "water + organism" criterion is based on the Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act.						
10	Benzene	71432	y	n	0.44	1.4
11	Benzidine	92875	y	n	0.000018	0.000020
12	Benz(a)anthracene	56553	y	n	0.0013	0.0018
13	Benzo(a)pyrene	50328	y	n	0.0013	0.0018

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**Table 40**

**Human Health Water Quality Criteria for Toxic Pollutants**

No.	Pollutant	CAS Number	Carcinogen	Aquatic Life Criterion	Human Health Criteria for the Consumption of:	
					Water + Organism (µg/L)	Organism Only (µg/L)
14	Benzo(b)fluoranthene 3,4	205992	y	n	0.0013	0.0018
15	Benzo(k)fluoranthene	207089	y	n	0.0013	0.0018
16	BHC Alpha	319846	y	n	0.00045	0.00049
17	BHC Beta	319857	y	n	0.0016	0.0017
18	BHC Gamma (Lindane)	58899	n	y	0.17	0.18
19	Bromoform	75252	y	n	3.3	14
20	Butylbenzyl Phthalate	85687	n	n	190	190
21	Carbon Tetrachloride	56235	y	n	0.10	0.16
22	Chlordane	57749	y	y	0.000081	0.000081
23	Chlorobenzene	108907	n	n	74	160
24	Chlorodibromomethane	124481	y	n	0.31	1.3
25	Chloroethyl Ether bis 2	111444	y	n	0.020	0.053
26	Chloroform	67663	n	n	260	1100
27	Chloroisopropyl Ether bis 2	108601	n	n	1200	6500
28	Chloromethyl ether, bis	542881	y	n	0.000024	0.000029
29	Chloronaphthalene 2	91587	n	n	150	160
30	Chlorophenol 2	95578	n	n	14	15
31	Chlorophenoxy Herbicide (2,4,5,-TP) <sup>D</sup>	93721	n	n	10	--



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**Table 40**

**Human Health Water Quality Criteria for Toxic Pollutants**

No.	Pollutant	CAS Number	Carcinogen	Aquatic Life Criterion	Human Health Criteria for the Consumption of:	
					Water + Organism (µg/L)	Organism Only (µg/L)
<p><sup>D</sup> The Chlorophenoxy Herbicide (2,4,5,-TP) criterion is the same as originally published in the 1976 EPA Red Book which predates the 1980 methodology and did not utilize the fish ingestion BCF approach. This same criterion value was also published in the 1986 EPA Gold Book. Human health risks are primarily from drinking water, therefore no "organism only" criterion was developed. The "water + organism" criterion is based on the Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act.</p>						
32	Chlorophenoxy Herbicide (2,4-D) <sup>E</sup>	94757	n	n	100	--
<p><sup>E</sup> The Chlorophenoxy Herbicide (2,4-D) criterion is the same as originally published in the 1976 EPA Red Book which predates the 1980 methodology and did not utilize the fish ingestion BCF approach. This same criterion value was also published in the 1986 EPA Gold Book. Human health risks are primarily from drinking water, therefore no "organism only" criterion was developed. The "water + organism" criterion is based on the Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act.</p>						
33	Chrysene	218019	y	n	0.0013	0.0018
34	Copper <sup>F</sup>	7440508	n	y	1300	--
<p><sup>F</sup> Human health risks from copper are primarily from drinking water, therefore no "organism only" criterion was developed. The "water + organism" criterion is based on the Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act.</p>						
35	Cyanide <sup>G</sup>	57125	n	y	130	130
<p><sup>G</sup> The cyanide criterion is expressed as total cyanide (CN)/L.</p>						
36	DDD 4,4'	72548	y	n	0.000031	0.000031
37	DDE 4,4'	72559	y	n	0.000022	0.000022
38	DDT 4,4'	50293	y	y	0.000022	0.000022
39	Dibenz(a,h)anthracene	53703	y	n	0.0013	0.0018
40	Dichlorobenzene(m) 1,3	541731	n	n	80	96
41	Dichlorobenzene(o) 1,2	95501	n	n	110	130

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**Table 40**

**Human Health Water Quality Criteria for Toxic Pollutants**

No.	Pollutant	CAS Number	Carcinogen	Aquatic Life Criterion	Human Health Criteria for the Consumption of:	
					Water + Organism (µg/L)	Organism Only (µg/L)
42	Dichlorobenzene(p) 1,4	106467	n	n	16	19
43	Dichlorobenzidine 3,3'	91941	y	n	0.0027	0.0028
44	Dichlorobromomethane	75274	y	n	0.42	1.7
45	Dichloroethane 1,2	107062	y	n	0.35	3.7
46	Dichloroethylene 1,1	75354	n	n	230	710
47	Dichloroethylene trans 1,2	156605	n	n	120	1000
48	Dichlorophenol 2,4	120832	n	n	23	29
49	Dichloropropane 1,2	78875	y	n	0.38	1.5
50	Dichloropropene 1,3	542756	y	n	0.30	2.1
51	Dieldrin	60571	y	y	0.0000053	0.0000054
52	Diethyl Phthalate	84662	n	n	3800	4400
53	Dimethyl Phthalate	131113	n	n	84000	110000
54	Dimethylphenol 2,4	105679	n	n	76	85
55	Di-n-butyl Phthalate	84742	n	n	400	450
56	Dinitrophenol 2,4	51285	n	n	62	530
57	<i>Dinitrophenols</i>	25550587	n	n	62	530
58	Dinitrotoluene 2,4	121142	y	n	0.084	0.34
59	Dioxin (2,3,7,8-TCDD)	1746016	y	n	0.00000000051	0.00000000051

**OAR 340-041-8033**

**Table 40**

**Human Health Water Quality Criteria for Toxic Pollutants**

No.	Pollutant	CAS Number	Carcinogen	Aquatic Life Criterion	Human Health Criteria for the Consumption of:	
					Water + Organism (µg/L)	Organism Only (µg/L)
60	Diphenylhydrazine 1,2	122667	y	n	0.014	0.020
61	Endosulfan Alpha	959988	n	y	8.5	8.9
62	Endosulfan Beta	33213659	n	y	8.5	8.9
63	Endosulfan Sulfate	1031078	n	n	8.5	8.9
64	Endrin	72208	n	y	0.024	0.024
65	Endrin Aldehyde	7421934	n	n	0.030	0.030
66	Ethylbenzene	100414	n	n	160	210
67	Ethylhexyl Phthalate bis 2	117817	y	n	0.20	0.22
68	Fluoranthene	206440	n	n	14	14
69	Fluorene	86737	n	n	390	530
70	Heptachlor	76448	y	y	0.0000079	0.0000079
71	Heptachlor Epoxide	1024573	y	y	0.0000039	0.0000039
72	Hexachlorobenzene	118741	y	n	0.000029	0.000029
73	Hexachlorobutadiene	87683	y	n	0.36	1.8
74	<i>Hexachlorocyclo-hexane-Technical</i>	608731	y	n	0.0014	0.0015
75	Hexachlorocyclopentadiene	77474	n	n	30	110
76	Hexachloroethane	67721	y	n	0.29	0.33
77	Indeno(1,2,3-cd)pyrene	193395	y	n	0.0013	0.0018

**OAR 340-041-8033**

**Table 40**

**Human Health Water Quality Criteria for Toxic Pollutants**

No.	Pollutant	CAS Number	Carcinogen	Aquatic Life Criterion	Human Health Criteria for the Consumption of:	
					Water + Organism (µg/L)	Organism Only (µg/L)
78	Isophorone	78591	y	n	27	96
79	Manganese <sup>H</sup>	7439965	n	n	--	100
<p><sup>H</sup> The "fish consumption only" criterion for manganese applies only to salt water and is for total manganese. This EPA recommended criterion predates the 1980 human health methodology and does not utilize the fish ingestion BCF calculation method or a fish consumption rate.</p>						
80	Methoxychlor <sup>I</sup>	72435	n	y	100	--
<p><sup>I</sup> The human health criterion for methoxychlor is the same as originally published in the 1976 EPA Red Book which predates the 1980 methodology and did not utilize the fish ingestion BCF approach. This same criterion value was also published in the 1986 EPA Gold Book. Human health risks are primarily from drinking water, therefore no "organism only" criterion was developed. The "water + organism" criterion is based on the Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act.</p>						
81	Methyl Bromide	74839	n	n	37	150
82	Methyl-4,6-dinitrophenol 2	534521	n	n	9.2	28
83	Methylene Chloride	75092	y	n	4.3	59
84	Methylmercury (mg/kg) <sup>J</sup>	22967926	n	n	--	0.040 mg/kg
<p><sup>J</sup> This value is expressed as the fish tissue concentration of methylmercury. Contaminated fish and shellfish is the primary human route of exposure to methylmercury.</p>						
85	Nickel	7440020	n	y	140	170
86	Nitrates <sup>K</sup>	14797558	n	n	10000	--
<p><sup>K</sup> The human health criterion for nitrates is the same as originally published in the 1976 EPA Red Book which predates the 1980 methodology and did not utilize the fish ingestion BCF approach. This same criterion value was also published in the 1986 EPA Gold Book. Human health risks are primarily from drinking water, therefore no "organism only" criterion was developed. The "water + organism" criterion is based on the Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act.</p>						
87	Nitrobenzene	98953	n	n	14	69

**OAR 340-041-8033**

**Table 40**

**Human Health Water Quality Criteria for Toxic Pollutants**

No.	Pollutant	CAS Number	Carcinogen	Aquatic Life Criterion	Human Health Criteria for the Consumption of:	
					Water + Organism (µg/L)	Organism Only (µg/L)
88	Nitrosamines	35576911	y	n	0.00079	0.046
89	Nitrosodibutylamine, N	924163	y	n	0.0050	0.022
90	Nitrosodiethylamine, N	55185	y	n	0.00079	0.046
91	Nitrosodimethylamine, N	62759	y	n	0.00068	0.30
92	Nitrosodi-n-propylamine, N	621647	y	n	0.0046	0.051
93	Nitrosodiphenylamine, N	86306	y	n	0.55	0.60
94	Nitrosopyrrolidine, N	930552	y	n	0.016	3.4
95	Pentachlorobenzene	608935	n	n	0.15	0.15
96	Pentachlorophenol	87865	y	y	0.15	0.30
97	Phenol	108952	n	n	9400	86000
98	Polychlorinated Biphenyls (PCBs) <sup>L</sup>	NA	y	y	0.0000064	0.0000064
<sup>L</sup> This criterion applies to total PCBs (e.g. determined as Aroclors or congeners).						
99	Pyrene	129000	n	n	290	400
100	Selenium	7782492	n	y	120	420
101	Tetrachlorobenzene, 1,2,4,5-	95943	n	n	0.11	0.11
102	Tetrachloroethane 1,1,2,2	79345	y	n	0.12	0.40
103	Tetrachloroethylene	127184	y	n	0.24	0.33
104	Thallium	7440280	n	n	0.043	0.047

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**Table 40**

**Human Health Water Quality Criteria for Toxic Pollutants**

No.	Pollutant	CAS Number	Carcinogen	Aquatic Life Criterion	Human Health Criteria for the Consumption of:	
					Water + Organism (µg/L)	Organism Only (µg/L)
105	Toluene	108883	n	n	720	1500
106	Toxaphene	8001352	y	y	0.000028	0.000028
107	Trichlorobenzene 1,2,4	120821	n	n	6.4	7.0
108	Trichloroethane 1,1,2	79005	y	n	0.44	1.6
109	Trichloroethylene	79016	y	n	1.4	3.0
110	Trichlorophenol 2,4,6	88062	y	n	0.23	0.24
111	Trichlorophenol, 2, 4, 5-	95954	n	n	330	360
112	Vinyl Chloride	75014	y	n	0.023	0.24
113	Zinc	7440666	n	y	2100	2600



State of Oregon Department of Environmental Quality

# OAR 340-040-0030 - Tables



**OREGON ADMINISTRATIVE RULES**  
**CHAPTER 340, DIVISION 40 - DEPARTMENT OF ENVIRONMENTAL QUALITY**

**TABLE 1**  
**(OAR 340-40-020)**

**Numerical Groundwater Quality Reference Levels:<sup>1</sup>**

<b>Inorganic Contaminants</b>	<b>Reference Level (mg/L)</b>
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium	0.05
Fluoride	4.0
Lead	0.05
Mercury	0.002
Nitrate-N	10.0
Selenium	0.01
Silver	0.05

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<sup>1</sup>All reference levels are for total (unfiltered) concentrations unless otherwise specified by the Department.

**OREGON ADMINISTRATIVE RULES**  
**CHAPTER 340, DIVISION 40 - DEPARTMENT OF ENVIRONMENTAL QUALITY**

**TABLE 2**  
**(OAR 340-40-020)**

**Numerical Groundwater Quality Reference Levels (Continued):<sup>1</sup>**

<b>Organic Contaminants</b>	<b>Reference Level (mg/L)</b>
Benzene	0.005
Carbon Tetrachloride	0.005
p-Dichlorobenzene	0.075
1,2-Dichloroethane	0.005
1,1-Dichloroethylene	0.007
1,1,1-Trichloroethane	0.200
Trichloroethylene	0.005
Total Trihalomethanes	0.100
(the sum of concentrations bromodichloromethane, dibromochloromethane, tribromomethane (bromoform), and trichloromethane (chloroform))	
Vinyl Chloride	0.002
2,4-D	0.100
Endrin	0.0002
Lindane	0.004
Methoxychlor	0.100
Toxaphene	0.005
2,4,5-TP Silvex	0.010

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<sup>1</sup>All reference levels are for total (unfiltered) concentrations unless otherwise specified by the Department.

**OREGON ADMINISTRATIVE RULES**  
**CHAPTER 340, DIVISION 40 - DEPARTMENT OF ENVIRONMENTAL QUALITY**

**TABLE 3**  
**(OAR 340-40-020)**

**Numerical Groundwater Quality Guidance Levels:<sup>1</sup>**

<b>Miscellaneous Contaminants</b>	<b>Guidance Level (mg/L)<sup>2</sup></b>
Chloride	250
Color	15 Color Units
Copper	1.0
Foaming agents	0.5
Iron	0.3
Manganese	0.05
Odor	3 Threshold odor number
pH	6.5-8.5
Sulfate	250
Total dissolved solids	500
Zinc	5.0

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<sup>1</sup>All guidance levels except total dissolved solids and are for total (unfiltered) concentrations unless otherwise specified by the Department.

<sup>2</sup>Unless otherwise specified, except pH.

# **APPENDIX C**

## **Wastewater Sampling Results**

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**DEVELOPMENT OF LOCAL LIMITS  
SAMPLING AND ANALYSIS PLAN**

**Influent**

Lqioxhqw	BOD <sub>5</sub>	TSS	Arsenic	Cadmium	Chromium	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Zinc	Cyanide	Mercury
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ng/L
Minimum Detection Limit			0.00000825	0.00000168	0.0000289	0.0000251	0.00000508	0.00000349	0.0000161	0.0000466	0.00000247	0.000486	0.00228	
Minimum Recording Limit	4	7	0.0005	0.000100	0.000400	0.0005	0.00010	0.00050	0.0005	0.00050	0.000100	0.0050	0.00300	0.5
December 17, 2018	217	186	0.0032	0.000117	0.001860	0.0199	0.00075	0.02400	0.0023	0.00124	0.000106	0.0895	0.00410	ND
March 19, 2019	171	118	0.0024	0.000229	0.001160	-	0.00070	0.01070	0.0026	0.00111	0.000044	0.0637	ND	14.2
April 9, 2019	168	128	0.0032	0.000094	0.001730	-	0.00062	0.01040	0.0028	0.00123	0.000062	0.0659	ND	11.6
June 18, 2019	230	132	0.0049	0.000174	0.003000	0.0267	0.00117	0.01330	0.0037	0.00151	0.000203	0.2760	ND	14.5
June 27, 2019	104	112	0.0026	0.000107	0.002510	0.0251	0.00096	0.00598	0.0027	0.00103	0.000100	0.0967	ND	10.9
August 1, 2019	317	192	0.0034	0.000139	0.002180	0.0218	0.00133	0.00945	0.0018	0.00081	0.000084	0.1020	ND	17.0
August 11, 2019	100	118	0.0027	0.000092	0.001610	0.0188	0.00114	0.00454	0.0005	0.00059	0.000069	0.0708	ND	20.0
December 11, 2019	106	130	0.0024	0.000222	0.001460	0.0105	0.00076	0.00191	0.0024	0.00070	0.000041	0.0513	ND	11.0
Average	177	140	0.0031	0.000147	0.001939	0.0205	0.00093	0.01004	0.0023	0.00103	0.000089	0.1020	0.00410	14.2

BOD<sub>5</sub> = five-day biochemical oxygen demand  
mg/L = milligrams per liter  
ND = non-detect  
ng/L = nanogram per liter  
TSS = total suspended solids

**DEVELOPMENT OF LOCAL LIMITS  
SAMPLING AND ANALYSIS PLAN**

**Plant 1 - Primary Effluent**

Lqioxhqw	<b>BOD<sub>5</sub></b>	<b>TSS</b>	<b>Arsenic</b>	<b>Cadmium</b>	<b>Chromium</b>	<b>Copper</b>	<b>Lead</b>	<b>Molybdenum</b>	<b>Nickel</b>	<b>Selenium</b>	<b>Silver</b>	<b>Zinc</b>	<b>Cyanide</b>	<b>Mercury</b>
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ng/L
Minimum Detection Limit			0.00000825	0.00000168	0.0000289	0.0000251	0.00000508	0.00000349	0.0000161	0.0000466	0.00000247	0.000486	0.00228	
Minimum Recording Limit	4	7	0.0005	0.000100	0.000400	0.0005	0.00010	0.00050	0.0005	0.00050	0.000100	0.0050	0.00300	0.5
December 17, 2018	8	17	0.0026	0.000036	0.000911	0.0057	0.00048	0.00562	0.0024	0.00132	0.000090	0.0256	0.00330	5.3
March 19, 2019	8	44	0.0019	0.000052	0.000446	-	0.00024	0.00512	0.0023	0.00113	0.000026	0.0168	ND	4.6
April 9, 2019	15	23	0.0021	0.000064	0.000868	-	0.00023	0.00539	0.0025	0.00111	0.000042	0.0235	0.00350	2.8
June 27, 2019	164	56	0.0015	0.000017	0.001150	0.0033	0.00018	0.00289	0.0021	0.00110	0.000007	0.0188	ND	3.3
August 1, 2019	78	32	0.0015	0.000103	0.000556	0.0154	0.00555	0.00244	0.0021	0.00059	0.000163	0.1130	ND	7.5
August 11, 2019	103	18	0.0016	0.000025	0.000517	0.0027	0.00034	0.00265	ND	0.00054	0.000091	0.0132	ND	4.9
December 11, 2019	105	62	0.0017	0.000037	0.000571	0.0038	0.00034	0.00319	0.0016	0.00069	0.000080	0.0179	ND	3.0
Average	69	36	0.0018	0.000048	0.000717	0.0062	0.00105	0.00390	0.0022	0.00093	0.000071	0.0327	0.00340	4.5

BOD<sub>5</sub> = five-day biochemical oxygen demand

mg/L = milligrams per liter

ND = non-detect

ng/L = nanogram per liter

TSS = total suspended solids

**DEVELOPMENT OF LOCAL LIMITS  
SAMPLING AND ANALYSIS PLAN**

**Plant 2 - Primary Effluent**

<b>Influent</b>	<b>BOD<sub>5</sub></b>	<b>TSS</b>	<b>Arsenic</b>	<b>Cadmium</b>	<b>Chromium</b>	<b>Copper</b>	<b>Lead</b>	<b>Molybdenum</b>	<b>Nickel</b>	<b>Selenium</b>	<b>Silver</b>	<b>Zinc</b>	<b>Cyanide</b>	<b>Mercury</b>
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ng/L
Minimum Detection Limit			0.00000825	0.00000168	0.0000289	0.0000251	0.00000508	0.00000349	0.0000161	0.0000466	0.00000247	0.000486	0.00228	
Minimum Recording Limit	4	7	0.0005	0.000100	0.000400	0.0005	0.00010	0.00050	0.0005	0.00050	0.000100	0.0050	0.00300	0.5
December 17, 2018	10	31	0.0031	0.000044	0.001260	0.0079	0.00049	0.00837	0.0024	0.00114	0.000042	0.0569	0.00340	5.1
March 19, 2019	12	68	0.0034	0.000068	0.008260	-	0.00476	0.00704	0.0041	0.00104	0.000052	0.0416	ND	7.9
April 9, 2019	28	68	0.0001	0.000005	ND	-	0.00001	0.00029	0.0001	ND	ND	0.0022	0.00240	4.5
June 27, 2019	112	60	0.0026	0.000027	0.000621	0.0052	0.00029	0.00635	0.0022	0.00092	0.000009	0.0350	ND	1.8
August 1, 2019	95	106	0.0031	0.000043	0.000423	0.0073	0.00051	0.00654	0.0018	0.00067	0.000044	0.0362	ND	3.1
August 11, 2019	101	98	0.0029	0.000037	0.000524	0.0052	0.00021	0.00587	0.0002	0.00074	0.000031	0.0215	ND	2.6
December 11, 2019	96	54	0.0030	0.000064	0.000617	0.0072	0.00045	0.00498	0.0018	0.00069	0.000057	0.0442	0.00280	4.3
Average	65	69	0.0026	0.000041	0.001951	0.0065	0.00096	0.00563	0.0018	0.00087	0.000039	0.0339	0.00287	4.2

BOD<sub>5</sub> = five-day biochemical oxygen demand

mg/L = milligrams per liter

ND = non-detect

ng/L = nanogram per liter

TSS = total suspended solids

**DEVELOPMENT OF LOCAL LIMITS  
SAMPLING AND ANALYSIS PLAN**

**Golf Course Pond - Plant 1 Final Effluent**

Influent	BOD <sub>5</sub>	TSS	Arsenic	Cadmium	Chromium	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Zinc	Cyanide	Mercury
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ng/L
Minimum Detection Limit			0.00000825	0.00000168	0.0000289	0.0000251	0.00000508	0.00000349	0.0000161	0.0000466	0.00000247	0.000486	0.00228	
Minimum Recording Limit	4	7	0.0005	0.000100	0.000400	0.0005	0.00010	0.00050	0.0005	0.00050	0.000100	0.0050	0.00300	0.5
December 17, 2018	2	6	0.0024	0.000031	0.000783	0.0039	0.00046	0.00310	0.0024	0.00174	0.000102	0.0218	0.01180	5.7
March 19, 2019	2	40	0.0013	0.000013	0.000080	-	0.00018	0.00203	0.0016	0.00062	0.000018	0.0057	ND	1.0
April 9, 2019	40	60	0.0017	0.000012	0.000574	-	0.00010	0.00290	0.0020	0.00795	0.000042	0.0120	0.00270	ND
June 27, 2019	188	4	0.0009	0.000008	0.000455	0.0021	0.00014	0.00114	0.0009	0.00031	ND	0.0089	ND	1.0
August 1, 2019	18	18	0.0014	0.000010	0.000317	0.0031	0.00028	0.00141	0.0006	0.00016	0.000028	0.0203	ND	1.1
August 11, 2019	18	24	0.0013	0.000029	0.000404	0.0029	0.00017	0.00129	ND	0.00019	0.000048	0.0109	0.00250	1.6
December 11, 2019	4	11	0.0015	0.000017	0.000414	0.0032	0.00016	0.00182	0.0011	0.00029	0.000023	0.0120	0.00230	1.2
Average	39	23	0.0015	0.000017	0.000432	0.0030	0.00021	0.00196	0.0015	0.00161	0.000044	0.0131	0.00483	1.9

BOD<sub>5</sub> = five-day biochemical oxygen demand

mg/L = milligrams per liter

ND = non-detect

ng/L = nanogram per liter

TSS = total suspended solids



**DEVELOPMENT OF LOCAL LIMITS  
SAMPLING AND ANALYSIS PLAN**

**Horse Shoe / Kidney Pond - Plant 2 Final Effluent**

Influent	BOD <sub>5</sub>	TSS	Arsenic	Cadmium	Chromium	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Zinc	Cyanide	Mercury
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ng/L
Minimum Detection Limit			0.00000825	0.00000168	0.0000289	0.0000251	0.00000508	0.00000349	0.0000161	0.0000466	0.00000247	0.000486	0.00228	
Minimum Recording Limit	4	7	0.0005	0.000100	0.000400	0.0005	0.00010	0.00050	0.0005	0.00050	0.000100	0.0050	0.00300	0.5
December 17, 2018	8	11	0.0026	0.000021	0.000746	0.0040	0.00426	0.00272	0.0023	0.00167	0.000044	0.0638	ND	ND
March 19, 2019	7	14	0.0018	0.000023	0.000180	-	0.00038	0.00392	0.0022	0.00140	0.000021	0.0170	ND	2.3
April 9, 2019	8	8	0.0025	0.000022	0.000600	-	0.00031	0.00504	0.0024	0.00136	0.000033	0.0273	0.00330	2.4
June 27, 2019	11	2	0.0018	0.000024	0.000521	0.0030	0.00024	0.00415	0.0016	0.00093	0.000017	0.0398	ND	1.7
August 1, 2019	18	11	0.0022	0.000021	0.000239	0.0041	0.00034	0.00443	0.0015	0.00058	0.000012	0.0112	ND	1.0
August 11, 2019	18	14	0.0021	0.000016	0.000480	0.0024	0.00027	0.00411	0.0000	0.00060	0.000010	0.0170	ND	1.7
December 11, 2019	6	5	0.0022	0.000024	0.000483	0.0034	0.00016	0.00440	0.0018	0.00064	0.000029	0.0187	ND	2.1
Average	11	9	0.0022	0.000022	0.000464	0.0034	0.00085	0.00411	0.0017	0.00103	0.000024	0.0278	0.00330	1.9

BOD<sub>5</sub> = five-day biochemical oxygen demand

mg/L = milligrams per liter

ND = non-detect

ng/L = nanogram per liter

TSS = total suspended solids

**DEVELOPMENT OF LOCAL LIMITS  
SAMPLING AND ANALYSIS PLAN**

**Apple**

Influent	BOD <sub>5</sub>	TSS	Arsenic	Cadmium	Chromium	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Zinc	Cyanide	Mercury
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ng/L
Minimum Detection Limit			0.00000825	0.00000168	0.0000289	0.0000251	0.00000508	0.00000349	0.0000161	0.0000466	0.00000247	0.000486	0.00228	
Minimum Recording Limit	4	7	0.0005	0.000100	0.000400	0.0005	0.00010	0.00050	0.0005	0.00050	0.000100	0.0050	0.00300	0.5
March 26, 2019	917	1582	-	-	-	-	-	-	-	-	-	-	-	-
March 20, 2019	-	-	0.0034	0.000655	0.013200	-	0.00502	0.00696	0.0147	0.00264	0.000310	0.4920	ND	55.5
April 9, 2019	294	200	0.0027	0.000104	0.003650	-	0.00036	0.00443	0.0034	0.00173	0.000046	0.1180	0.01860	19.3
June 18, 2019	486	400	0.0034	0.000142	0.004350	0.0733	0.00058	0.00372	0.0057	0.00192	0.000340	0.1810	ND	18.6
June 27, 2019	528	142	0.0036	0.000224	0.003190	0.0531	0.00040	0.00688	0.0043	0.00206	0.000031	0.1640	ND	28.0
August 1, 2019	340	92	0.0030	0.000153	0.001770	0.0647	0.00706	0.00402	0.0030	0.00106	0.000028	0.1900	ND	7.4
August 11, 2019	450	60	0.0033	0.000032	0.001590	0.0242	0.00022	0.00361	0.0008	0.00103	0.000052	0.0337	ND	6.2
December 11, 2019	262	96	0.0015	0.000025	0.000826	0.0324	0.00016	0.00133	0.0055	0.00065	0.000011	0.0293	ND	5.7
Average	468	367	0.0030	0.000191	0.004082	0.0495	0.00197	0.00442	0.0053	0.00158	0.000117	0.1726	0.01860	20.1

BOD<sub>5</sub> = five-day biochemical oxygen demand

mg/L = milligrams per liter

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ng/L = nanogram per liter

TSS = total suspended solids

**DEVELOPMENT OF LOCAL LIMITS  
SAMPLING AND ANALYSIS PLAN**

**Facebook**

Lqioxhqw	<b>BOD<sub>5</sub></b>	<b>TSS</b>	<b>Arsenic</b>	<b>Cadmium</b>	<b>Chromium</b>	<b>Copper</b>	<b>Lead</b>	<b>Molybdenum</b>	<b>Nickel</b>	<b>Selenium</b>	<b>Silver</b>	<b>Zinc</b>	<b>Cyanide</b>	<b>Mercury</b>
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ng/L
Minimum Detection Limit			0.0000825	0.0000168	0.0000289	0.0000251	0.0000508	0.0000349	0.0000161	0.0000466	0.0000247	0.000486	0.00228	
Minimum Recording Limit	4	7	0.0005	0.000100	0.000400	0.0005	0.00010	0.00050	0.0005	0.00050	0.000100	0.0050	0.00300	0.5
December 18, 2018	190	108	0.0049	0.000471	0.005120	0.0222	0.00056	-	0.0024	0.00453	0.000031	0.1040	ND	11.7
March 20, 2019	302	270	0.0025	0.000241	0.003690	-	0.00045	0.05620	0.0032	0.00350	0.000065	0.1890	ND	36.5
April 9, 2019	195	120	0.0046	0.001920	0.002540	-	0.00026	0.12700	0.0019	0.00279	0.000050	0.0631	ND	15.2
June 27, 2019	266	210	0.0030	0.000468	0.003400	0.0399	0.00062	0.24100	0.0041	0.00315	0.000039	0.1550	ND	38.9
August 1, 2019	370	180	0.0028	0.000255	0.002050	0.0311	0.00226	0.18300	0.0016	0.00122	0.000043	0.1340	ND	11.3
August 11, 2019	362	236	0.0025	0.000276	0.003110	0.0295	0.00057	0.11300	0.0013	0.00122	0.000073	0.1230	0.00260	16.9
December 11, 2019	167	128	0.0023	0.000054	0.001700	0.0223	0.00028	0.00354	0.0015	0.00119	0.000021	0.0673	ND	9.1
Average	265	179	0.0032	0.000526	0.003087	0.0290	0.00071	0.12062	0.0023	0.00251	0.000046	0.1193	0.00260	19.9

BOD<sub>5</sub> = five-day biochemical oxygen demand

mg/L = milligrams per liter

ND = non-detect

ng/L = nanogram per liter

TSS = total suspended solids

**DEVELOPMENT OF LOCAL LIMITS  
SAMPLING AND ANALYSIS PLAN**

**Manhole 857 - Domestic Wastewater**

Influent	BOD <sub>5</sub>	TSS	Arsenic	Cadmium	Chromium	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Zinc	Cyanide	Mercury
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ng/L
Minimum Detection Limit			0.00000825	0.00000168	0.0000289	0.0000251	0.00000508	0.00000349	0.0000161	0.0000466	0.00000247	0.000486	0.00228	
Minimum Recording Limit	4	7	0.0005	0.000100	0.000400	0.0005	0.00010	0.00050	0.0005	0.00050	0.000100	0.0050	0.00300	0.5
December 18, 2018	303	242	0.0755	0.000250	0.011500	0.1100	0.00409	0.00585	0.0627	0.00121	0.000539	0.1580	ND	83.6
March 20, 2019	268	176	0.0025	0.000074	0.001870	-	0.00100	0.00175	0.0033	0.00111	0.000894	0.0648	ND	78.7
April 9, 2019	257	100	0.0028	0.000092	0.002010	-	0.00758	0.00232	0.0033	0.00114	0.000405	0.0776	0.00260	80.2
June 27, 2019	174	338	0.0033	0.000127	0.002420	0.0241	0.00106	0.00324	0.0032	0.00146	0.000232	0.1360	ND	25.0
August 1, 2019	332	156	0.0029	0.000091	0.002120	0.0225	0.00121	0.00261	0.0025	0.00071	0.000107	0.1100	ND	33.3
August 11, 2019	311	200	0.0024	0.000086	0.001720	0.0155	0.00079	0.00214	0.0007	0.00067	0.000208	0.0937	ND	35.7
December 11, 2019	260	142	0.0024	0.000091	0.001110	0.0218	0.00074	0.00174	0.0020	0.00078	0.000371	0.0850	0.00250	30.1
Average	272	193	0.0131	0.000116	0.003250	0.0388	0.00235	0.00281	0.0111	0.00101	0.000394	0.1036	0.00255	52.4

BOD<sub>5</sub> = five-day biochemical oxygen demand

mg/L = milligrams per liter

ND = non-detect

ng/L = nanogram per liter

TSS = total suspended solids