



***CITY OF CHENEY  
DEPARTMENT OF PUBLIC WORKS  
WASTEWATER DIVISION***

*119 Anderson Road  
Cheney, Washington 99004*

**CHENEY WASTEWATER TREATMENT  
AND  
RECLAMATION PLANT**

**2023 WASTELOAD ASSESSMENT**

**NPDES PERMIT # WA-0020842**

*City of Cheney,  
County of Spokane,  
State of Washington.*

## **PERMIT COMPLIANCE**

The City of Cheney Wastewater Treatment and Reclamation Plant operates under the conditions of National Pollutant Discharge Elimination System (NPDES) Permit # WA-0020842. This permit contains stringent conditions and parameters regarding effluent monitoring and effluent discharge limitations.

The treatment plant processes accomplished, on average, 97.5% removal of organics (measured as biochemical oxygen demand, or BOD), 97.7% removal of solids (measured as total suspended solids, or TSS), and virtually 100% removal of ammonia nitrogen (NH<sub>3</sub>). With this level of performance, we are capable of safely reusing plant effluent for on-site irrigation, process make-up water, and maintenance wash down water.

There were no non-compliance issues for 2023.

The effluent limits and removal rates achieved during 2023 are listed within the monthly Discharge Monitoring Reports, as filed with the Department of Ecology in the PARIS database system. For a compliance overview see page 9, recap spreadsheet. A special condition section, S-1, of the NPDES Permit indicates the required effluent limits which are illustrated on page 3.

## **SPECIAL CONDITIONS, EFFLUENT LIMITATIONS**

<b><u>PARAMETER</u></b>	<b><u>PERMIT AVERAGE MONTH</u></b>	<b><u>MAXIMUM MONTH AVERAGE</u></b>	<b><u>AVERAGE MONTH % REMOVAL</u></b>
BOD (Biochemical O <sub>2</sub> Demand)	15 mg/L or 85%	3.92mg/L	97.5 %
TSS (Total Suspended Solids)	15 mg/L or 85%	3.8 mg/L	97.7 %
Coliform (Fecal Coliform Bacteria)	50 cfu/100 mL	11.1 cfu/100 mL	N/A
Ammonia (NH <sub>3</sub> -N)	3.0 mg/L	<1.00 mg/L*	100 %
Phosphorus (as P)	2.0 mg/L	0.84 mg/L	86.76 %
pH	Range 6.0 to 9.0 s.u.	7.48 s.u.	N/A
CL <sub>2</sub> / TCR (Total Chlorine Residual)	11 ug/L	<0.00**	100 %

\* < 1.00 mg/L indicated the lower detection limit of method utilized for ammonia nitrogen determination.

\*\* < 0.00 indicated no chlorine was detected in the effluent and an SO<sub>2</sub> residual was present.

## **LOADING ASSESSMENT**

<u>PARAMETER</u>	<u>DESIGN LOADING</u>	<u>2022 LOADING</u>	<u>2023 LOADING</u>	<u>% CHANGE</u>
<u>MONTHLY FLOWS</u>				
Wet Weather (Jan-June)	3.05 mgd (MMDF)	1,437,599	1,526,500	+ 6.2 %
Dry Weather (July-Dec)	1.90 mgd (Annual AVG)	1,128,268	1,151,500	+ 2.0 %
Peak Flow	6.0 mgd (Design Peak)	4,041,000	2,890,000	-28.5 %
<u>LOADING</u>				
Influent BOD <sub>5</sub> ppd	4,780 ppd	2335 ppd	2188 ppd	- 6.3 %
Influent TSS ppd	4,140 ppd	2388 ppd	2251 ppd	- 5.7 %
<u>POPULATION</u>				
Population	13,550 (including EWU)	12920	12435	-3.7 %

Project population growth is 1.5% per year thru 2040. The estimated 2040 population is 16,641.

**2034 is the predicted year the WTRP is to reach 85% design capacity based on population and flows.**

## **OPERATIONAL OVERVIEW**

### COLLECTIONS SYSTEM MAINTENANCE

The Wastewater Collections Division has a yearly maintenance program meant to maintain and improve the sewer system. The WWC Division hydro cleans 1/3 of the sewer lines yearly so that the whole system is kept in top condition to prevent backups or overflows. Identified “problem lines” are on a regular schedule to maintain and avoid backups. The WWC division also video inspects portions of the system each year in conjunction with maintenance and service work. Video inspections are utilized to identify problem areas for damaged lines that need replaced, can be grouted or lined for I&I abatement. This program has been ongoing since 2000 and has effectively covered the entire collections system. I&I abatement is now focusing on lining and grouting of manholes.

### PROCESS OPERATIONS

The WTRP has many process challenges presented throughout the year. Constant process adjustments have to be made to accommodate the ever changing loading conditions. Cheney experiences a rapidly changing population equivalent following the Eastern Washington University school year. Rapid influx and exodus of student populations drastically change the flow and loading on the WTRP. Along with seasonal changes this

creates many operational challenges that require constant monitoring and process adjustments to keep the WTRP operating at a high level of efficiency. Process changes ranges vary from minor adjustments to major changes requiring removal of or bringing online additional tanks and basins. Years of cyclic data and known conditions allow the process to be adjusted in anticipation of these rapid changes. The ever changing conditions create difficult operational parameters that influence the biological process and create challenging operational performance.

The WTRP has an aggressive operations and maintenance program that assures the facility is functioning at the highest level of reliability. Predictive and preventative maintenance assures that failures of equipment are kept to a minimum and interruption of process efficiency is negligible.

### LABORATORY OPERATIONS

The Cheney WTRP Laboratory maintains laboratory accreditation through Washington State Department of Ecology accreditation program. The lab maintains accreditation as required in the NPDES permit.

The lab performs all monthly NPDES reporting and process operation testing in house. Anatek Labs of Spokane is utilized as an accredited back up laboratory and for metals or other testing as necessary.

Laboratory equipment is maintained on a regular schedule and replacements are made to assure the most reliable data is being obtained.

### WETLANDS PERFORMANCE

The City of Cheney's WTRP wetlands were designed for tertiary enhancement for the wastewater treatment plant effluent. During 2023 no discharge from site 002 at Dike 7 occurred.

Water which flows to Minnie Creek from Cell "A" thru WD003 consists of runoff water from the surrounding upland areas along with storm water from the west end of town.

### BIOSOLIDS COMPOSTING

The City of Cheney utilizes a 'Class A' biosolids composting process for beneficial end use of waste sludge. This is a combination of the WTRP biosolids and collected clean green yard waste from the community. Thermophilic static pile composting has proven to be an efficient and reliable means to dispose of the excess biosolids while providing an excellent soil amendment available back to the community. The Biosolids composting process remains a viable, cost effective means of waste biosolids disposal.

During 2023 the Cheney plant processed approximately 3,902 cubic yards of finished Class A compost. The certified compost is then sold to the public as bulk material under the product name "EcoGreen."