

2023 WASTE LOAD ASSESSMENT

City of West Richland
September 2023



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INTRODUCTION

This report has been assembled to satisfy the requirements of the City of West Richland's National Pollutant Discharge Elimination System (NPDES) permit for the city's Publicly Owned Treatment Works (POTW) which treats effluent from the city sewer system and discharges treated wastewater into the Yakima River approximately 9 miles from its junction with the Columbia River.

Purpose

Section S4.F of the city's NPDES permit requires a Waste Load Assessment Report be submitted to the Department of Ecology no later than October 1, 2023, with the following sections.

- 1) A description of compliance or noncompliance with the permit effluent limits.
- 2) A comparison between the existing and design:
 - a) Monthly average dry weather and wet weather flows.
 - b) BOD₅ loading.
 - c) Total suspended solids loadings.
- 3) The percent change in the above parameters since the previous report.
- 4) The present and design population or population equivalent.
- 5) The projected population growth rate.
- 6) The estimated date upon which the Permittee expects the wastewater treatment plant to reach design capacity, according to the most restrictive of the parameters above.

Background

The following is a brief description of the City of West Richland Waste Discharge permitted facility.

Owner and operator of permitted facilities:

City of West Richland
 3100 Belmont Boulevard,
 Suite 102
 West Richland, WA 99353

Facility Contacts:

Roscoe C. Slade III, Public Works Director	(509)967-5434
Randy Paulson, Utility & Facility Op. Manager	(509)967-5434
Dustin Miller, Sewer Operations Supervisor	(509)967-5434
Permit No.	WA-005106-3
Issuance Date:	9/27/2021
Effective Date:	11/21/2021
Expiration Date:	10/31/2026

The North Wastewater Treatment Plant utilizes activated sludge with extended aeration. The North Wastewater Treatment Plant is located approximately one-half mile to the north-northeast of the intersection of Van Giesen Street and Bombing Range Road. The Plant is located in the SW $\frac{1}{4}$ of Section 32, Township 10 North Range 28 E.W.M. The outfall is a four port Outfall discharging into the Yakima River approximately 30' North of the South riverbank at:

Latitude: 46.31133 °N

Longitude: 119.33772 °W

1 COMPLIANCE WITH PERMIT LIMITS

Table 1-1 indicates the permit constituent limits.

Table 1-1 Effluent Limits for Outfall to Yakima River – NPDES Permit

Parameter	Average Monthly	Average Weekly
BOD ₅	10 mg/L, 125 lbs/day, 85% removal of influent BOD ₅	10 mg/L, 125 lbs/day
TSS	15 mg/L, 187.7 lbs/day, 85% removal of influent TSS	15 mg/L, 187.7 lbs/day
Fecal Coliform Bacteria	100 organisms/100 mL	200 organisms/100 mL
Parameter	Daily Minimum	Daily Maximum
pH	6.5	8.5
Total Ammonia	-	1 mg/L, 12.6 lbs/day

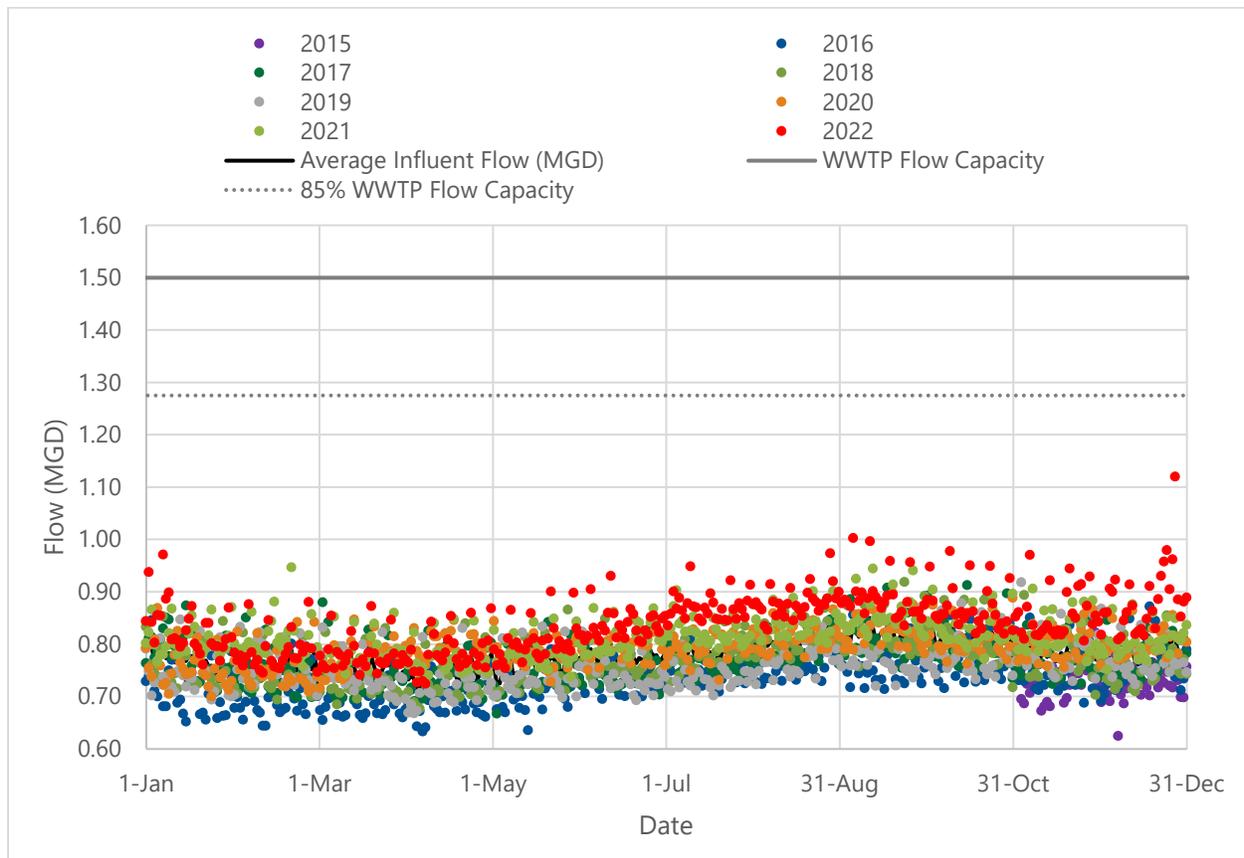
The treatment system is in full compliance with its above permit effluent limits. City staff have consistently obtained Department of Ecology's Outstanding Performance Award for perfect compliance with their NPDES permit. In the past two years, the city has only received a handful of minor violations relating to not conducting required analyses, submitting late DMRs, and sampling too infrequently.

2 FLOW AND LOAD COMPARISON

This section compares current and historical flows and pollutant loadings with the design capacity of the city's wastewater treatment plant.

2.1 Monthly Average Flows

Figure 2-1 Influent Flow Seasonal Variation



Daily flow varies seasonally as shown in **Figure 2-1**. Wet weather flows were defined using flow data from September and October. The average daily flow for September and October is 0.99 MGD and the monthly average dry weather flow is 0.84 MGD. Monthly average wet weather flow is about 18 percent higher than the average annual flow. Wet weather flow is 66 percent of the WWTP design flow capacity and dry weather flow is 56 percent of the WWTP design flow capacity (1.5 MGD).

2.2 BOD

The average day, maximum month, peak day, and maximum 3-month average BOD loading for 2016 through 2022 are summarized in Table 2-1. The daily and monthly average BOD loadings are shown in Figure 2-1.

Table 2-1 BOD Summary by Year

Item	2016	2017	2018	2019	2020	2021	2022	Probable Existing
Annual Average Day Load (ppd)	1,418	1,321	1,427	1,580	1,592	1,335	1,302	1,580 ^(a)
Annual Average Day Concentration (mg/L)	234	213	233	258	252	201	189	258 ^(a)
Population Equivalent (ppd/person) ^(b)	0.10	0.09	0.09	0.10	0.10	0.08	0.07	0.09 ^(a)
Maximum 3 Month Load (mgd)	1,733	1,532	1,773	1,744	1,975	1,800	1,522	1,744 ^(a)
Peaking Factor	1.22	1.16	1.24	1.10	1.24	1.35	1.17	1.10 ^(c)
Maximum Month Load (ppd)	1,733	1,740	1,773	1,935	2,375	2,318	1,543	1,935 ^(a)
Peaking Factor	1.22	1.32	1.24	1.22	1.49	1.74	1.19	1.22 ^(a)
Peak Day Load (ppd)	3,117	1,870	2,171	2,369	3,272	3,028	2,481	2,369 ^(a)
Peaking Factor	2.20	1.41	1.52	1.50	2.05	2.27	1.91	1.50 ^(c)

^(a) Based on the year with the highest average value from the past 5 years (2019). 2020 was excluded due to the COVID-19 pandemic.

^(b) Based on an estimated population of:

2016 - 14,340

2017 - 14,660

2018 - 15,320

2019 - 15,340

2020 - 16,295

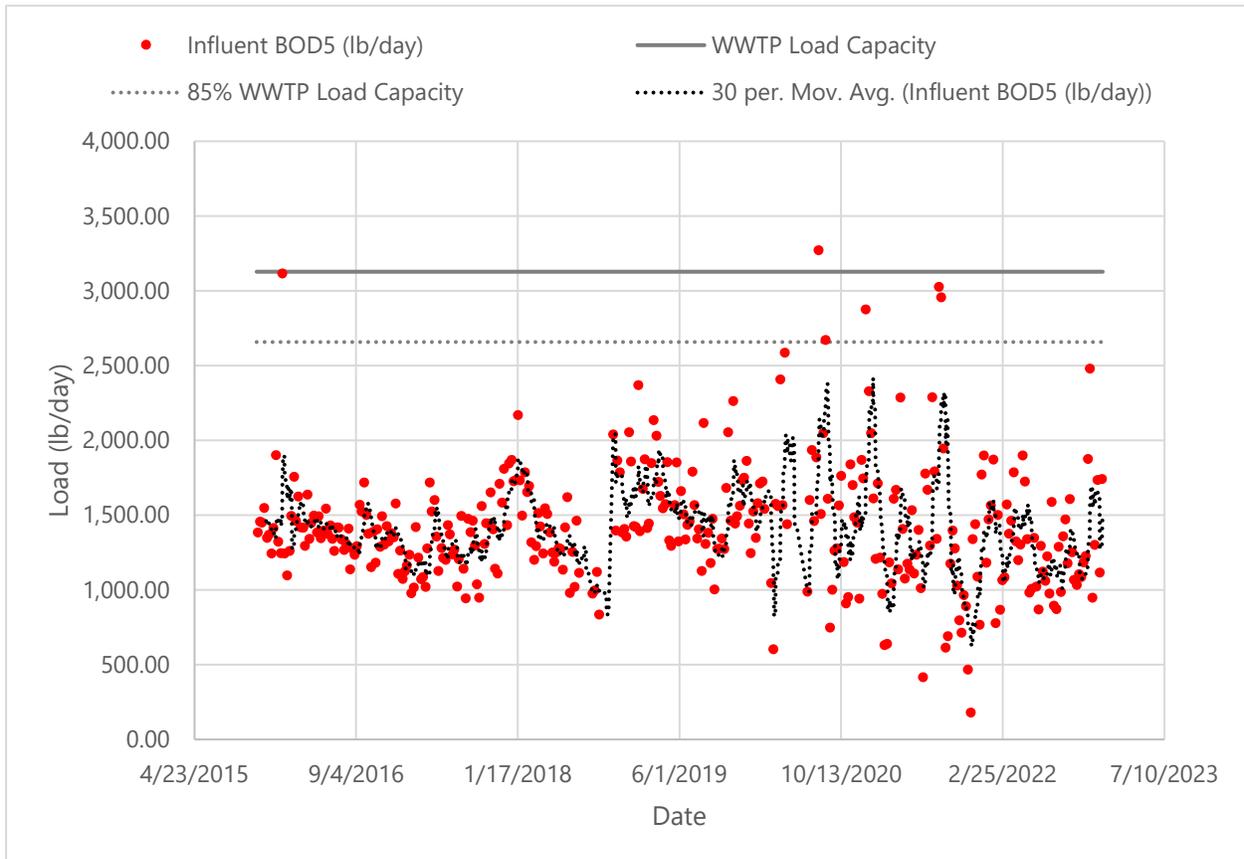
2021 - 17,070

2022 - 17,410

^(c) The peaking factor is calculated as the selected maximum divided by the annual average day load.

The BOD loading shows day-to-day variations, but a relatively consistent monthly pattern. A probable existing average value of 1,580 ppd for BOD loading for the city was selected based on 2019 data, which equates to 0.09 pounds per capita per day (ppcd) using a sewered population of 17,410. This is slightly lower than the typical range of 0.11 to 0.26 ppcd for residential loading (Metcalf and Eddy). The current BOD₅ loading of 1,580 ppd, which is 50 percent of the WWTP treatment design capacity (3,128 lb/day).

Figure 2-2 BOD Load Summary (2016 – 2020)



2.3 TSS

The average day, maximum month, peak day, and maximum 3-month average TSS loading for 2016 through 2022 are summarized in **Table 2-2**. The daily and monthly average TSS are shown in **Figure 2-3**.

Table 2-2 TSS Summary by Year

Item	2016	2017	2018	2019	2020	2021	2022	Probable Existing
Annual Average Day Load (ppd)	1,363	1,221	1,248	1,405	1,593	1,142	1,397	1,397 ^(a)
Annual Average Day Concentration (mg/L)	230	196	359	230	240	172	205	205 ^(a)
Population Equivalent (ppd/person) ^(b)	0.10	0.08	0.08	0.09	0.10	0.07	0.08	0.08 ^(a)
Maximum 3 Month Load (mgd)	1,438	1,502	1,511	1,468	1,835	1,348	1,503	1,503 ^(a)
Peaking Factor	1.06	1.23	1.21	1.05	1.15	1.18	1.08	1.08 ^(c)

Maximum Month Load (ppd)	1,574	1,597	1,593	1,577	2,169	1,348	1,623	1,623 ^(a)
Peaking Factor	1.16	1.31	1.28	1.12	1.36	1.18	1.16	1.16 ^(c)
Peak Day Load (ppd)	1,841	2,346	1,861	2,030	3,301	1,683	2,023	2,023 ^(a)
Peaking Factor	1.35	1.92	1.49	1.45	2.07	1.47	1.45	1.45 ^(c)

^(a) Based on 2022 data.

^(b) Based on an estimated population of:

2016 - 14,340

2017 - 14,660

2018 - 15,320

2019 - 15,340

2020 - 16,295

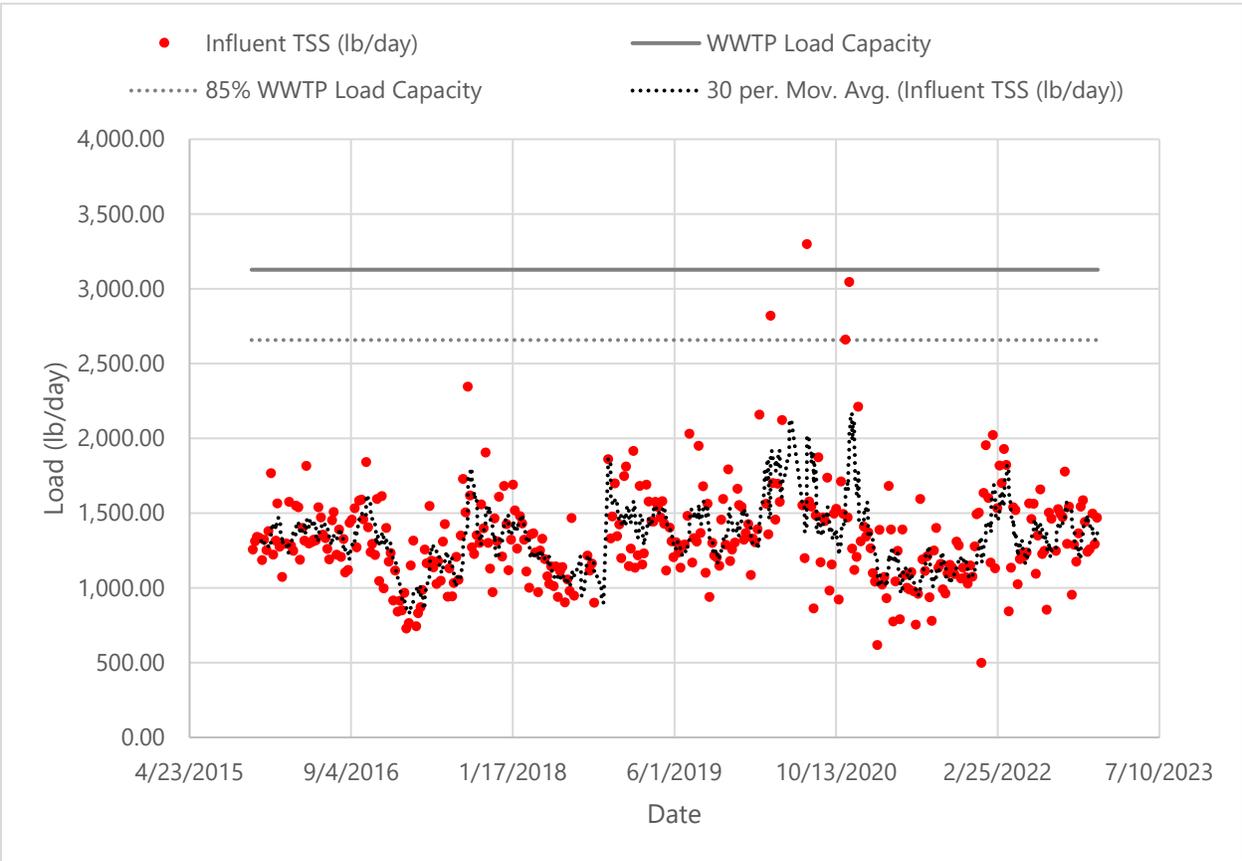
2021 - 17,070

2022 - 17,410

^(c) The peaking factor is calculated as the selected maximum divided by the annual average day load.

TSS loading has been relatively consistent for the period 2016 through 2022. The 2022 average loading of 1,397 ppd was used as the probable existing average value, which equates to 0.08 pounds per capita per day (ppcd) using a sewered population of 17,410. This is slightly lower than the typical range of 0.13 to 0.33 ppcd for residential loading (Metcalf and Eddy). The current BOD₅ loading of 1,397 ppd is 55 percent of the WWTP treatment capacity (3,128 lb/day).

Figure 2-3 TSS Load Summary (2016 - 2020)



3 CHANGE IN PARAMETERS FROM THE 2016 WASTE LOAD ASSESSMENT

3.1 Change in Parameters Since Last Report

The prior waste load assessment was filed in 2016 (**appendix 1**). Flow and loading data from the 2016 Waste Load Assessment Report and current loadings are listed in **Table 3-1**.

Table 3-1 Change in Parameters Since Last Report

Parameter (3-Month Average)	Permit Limit	2015 Values	Current Values	% Increase
Flow (MGD)	1.5	0.724	0.88	21.5%
BOD ₅ (lbs/day)	3,128	1501.8	1,744	16.1%
TSS (lbs/day)	3,128	1273.3	1,503	18.0%

4 CURRENT AND DESIGN POPULATION

The city's population as reported by the Washington State Office of Financial Management is 17,840 as of April 1, 2023. Approximately 1,674 people (598 residential parcels assuming 2.8 people per dwelling unit) within the existing service area are served by individual onsite sewer systems. Therefore, the population served by the city sewer system is 16,166.

The wastewater treatment plant is designed to treat 1.5 MGD of effluent, 3,128 IB/day of BOD₅ and 3,128 IB/day of TSS. Recent analysis completed for the draft 2024 General Sewer Plan found the WWTP receives 49.31 gallons of effluent, 0.10 pounds of BOD₅ and 0.08 pounds of TSS per capita during the peak month. Table 4-1 uses these per capita values to project the population design capacity of the treatment plant. Effluent flow is the most restrictive loading resulting in a design population of approximately 30,420.

Table 4-1 Design Capacity

Parameter	Per Capita	Permit Capacity	Population capacity
Effluent Flow	49.31 (GPCD)	1,500,000 gal/day	30,420
BOD	0.10 (PPCD)	3,128 lbs/day	31,280
TSS	0.08 (PPCD)	3,128 lbs/day	39,100

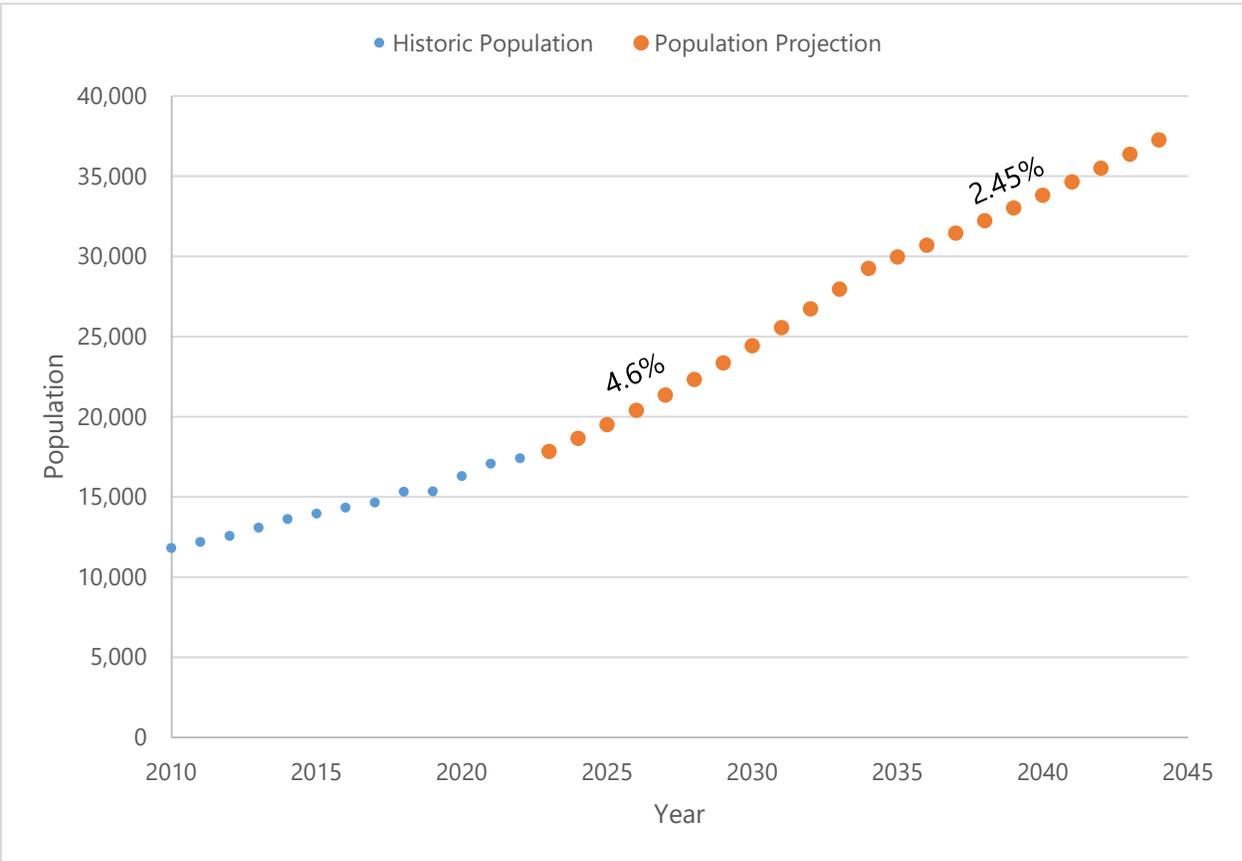
5 PROJECTED POPULATION GROWTH RATE

Historical records indicate the population growth in the City of West Richland is fairly consistent at 3.0% with a significant increase in 2020. Current residential development data provided by the city show a projected growth rate of 4.6 percent over the next 10 years (2024-2034). For planning purposes, the city has elected to use a higher growth rate than the OFM predicts. A growth rate of 4.6 percent was used to project population to the year 2034 and a growth rate of 2.45 percent was used to project population after the year 2034.

Table 5-1 Population Projections

Year	Population	Year	Population
2023	17,840	2030	24,441
2024	18,661	2031	25,565
2025	19,519	2032	26,741
2026	20,417	2033	27,971
2027	21,356	2034	29,258
2028	22,338	2039	33,022
2029	23,366	2044	37,270

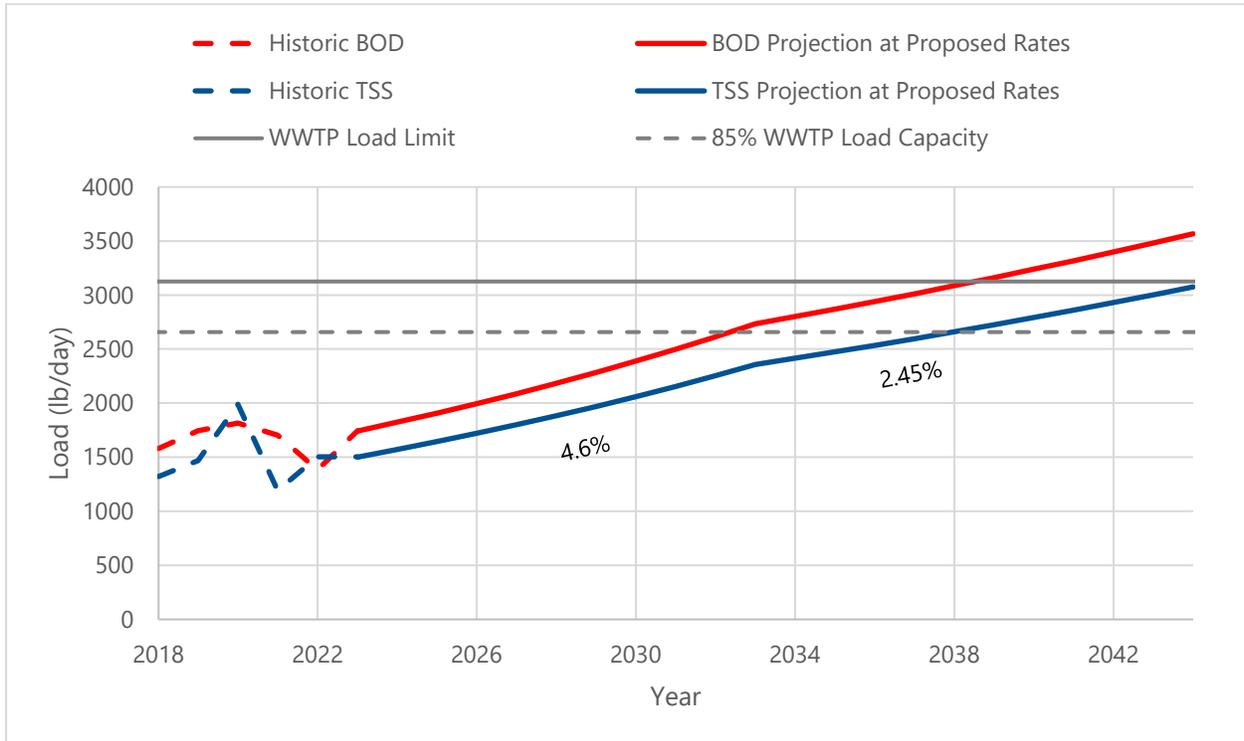
Figure 5-1 Historic and Projected Population



6 PROJECTED DESIGN CAPACITY EXCEDENCE YEAR

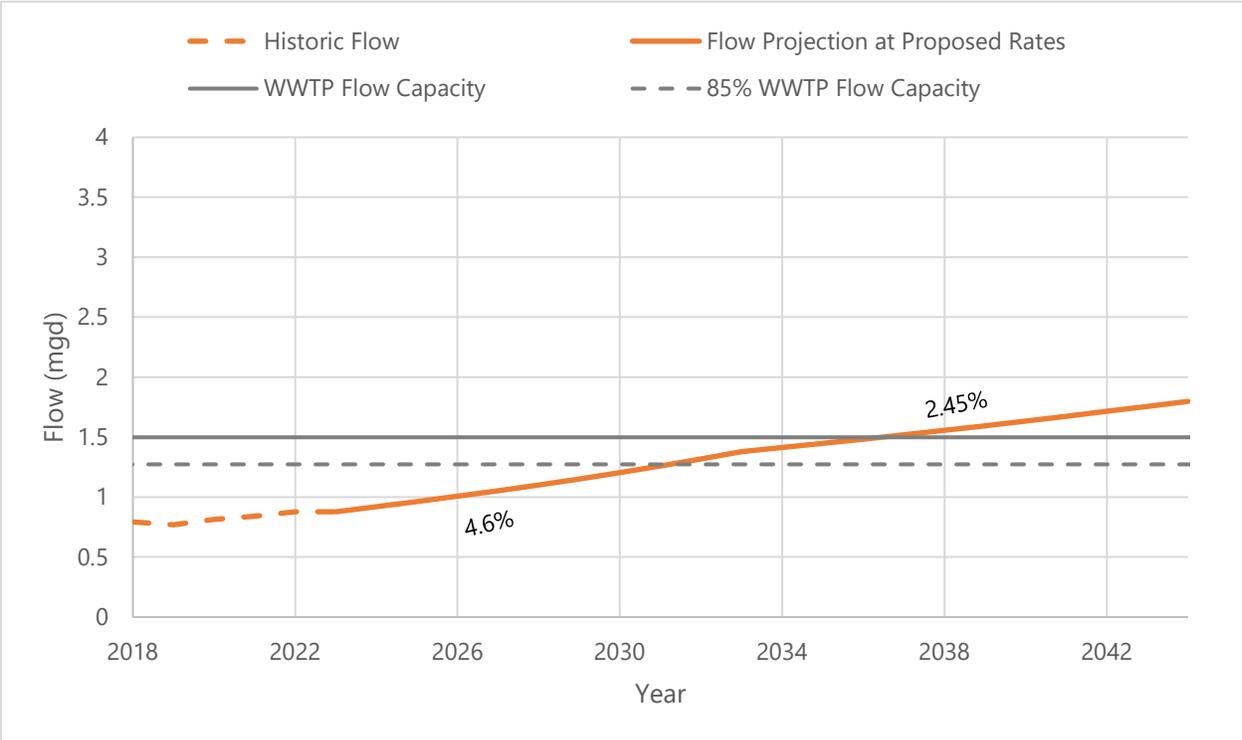
Figure 6-1 and Figure 6-2 are BOD, TSS, and Flow projections based on current conditions and projected population growth rates.

Figure 6-1 WWTP BOD and TSS Load Projections



Assuming the city’s projected population growth the WWTP will reach 85 percent of its rated BOD₅ capacity in 2033 and 100 percent of the rated capacity in 2038. 85 percent of the TSS capacity will be reached in 2038 and 100 percent of the rated TSS capacity in 2043.

Figure 6-2 WWTP Flow Projections



Flow is projected to reach the WWTP design capacity the soonest. Assuming the city’s projected population growth the WWTP will reach 85 percent of its rated flow capacity in 2032 and 100 percent of the rated capacity in 2037.

APPENDICES

Appendix A – 2016 Waste Load Assessment

CITY OF WEST RICHLAND

BENTON COUNTY, WASHINGTON

FY 2015 WASTELOAD ASSEMENT

**REPORT ISSUED
NOVEMBER 2016**



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CITY OF WEST RICHLAND WASTELOAD ASSESSMENT

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CITY OF WEST RICHLAND WASTELOAD ASSESSMENT FY 2015

PURPOSE AND SCOPE

The City of West Richland annually conducts an assessment of the flow and waste load to the North Wastewater Treatment Plant. Per section S4.F of the City's National Pollutant Discharge Elimination System (NPDES) permit this wasteload assessment report is to be submitted to the Department of Ecology no later than November 30, 2016.

The Wasteload Assessment focus is on the performance of the North Wastewater Treatment Plant.

North Wastewater Treatment Plant

1. A description of compliance or non-compliance with the permit effluent limits,
2. A comparison between the existing and design:
 - a. Monthly average dry weather and wet weather flows.
 - b. Peak flows.
 - c. BOD₅ loading.
 - d. Total suspended solids loadings.
3. The percent change in the above parameters since the previous report.
4. The present and design population or population equivalent.
5. The projected population growth rate.
6. The estimated date upon which the Permittee expects the wastewater treatment plant to reach design capacity, according to the most restrictive of the parameters above.

In addition to the above, this assessment includes reports on industrial dischargers, biosolids accumulations in NWTP's facultative sludge lagoon and significant activities and or improvements made to the facility since the previous report.

EXISTING CONDITIONS

The City of West Richland's wastewater treatment system serves the area within the City limits. The current wastewater treatment system is comprised of the North Wastewater Treatment Plant. The following is some background information and a description of the City of West Richland Waste Discharge Permit.

Owner and operator of permitted facilities:

City of West Richland
3801 W. Van Giesen
Wet Richland, Washington 99353

Facility Contacts:

Roscoe C. Slade III, Public Works Director	(509)967-5434
Randy Paulson, Sewer Operations Supervisor	(509)967-5723
Nick Berg, Treatment Plant Operator	(509)967-5723
Dustin Miller, Treatment Plant Operator	(509)967-5723

Permit No.:	WA-005106-3
Issuance Date:	September 10, 2013
Effective Date:	November 1, 2013
Expiration Date:	October 31, 2018

North Wastewater Treatment Plant

The North Wastewater Treatment Plant utilizes activated sludge with extended aeration. The North Wastewater Treatment Plant is located approximately one half mile to the north-northwest of City Hall. The plant is located in the SW ¼ of Section 32, Township 10 North, Range 28 E.W.M. The plant location is within the 100 year flood plain of the Yakima River, at River Mile 9.8, which is within River Segment WA-37-1010. The outfall is a four port discharging into the Yakima River approximately 30' North of the South river bank at:

Latitude:	46.31133° N
Longitude:	119.33772° W

ANNUAL ASSESSMENT

The following sections address the issues of the assessment given under Section S4.F of the National Pollution Discharge Elimination System Waste Discharge Permit for the North Wastewater Treatment Plant.

North Wastewater Treatment Plant

The North Wastewater Treatment Plant uses the BioLac (proprietary equipment) process which is a modification of the extended aeration activated sludge wastewater treatment process. The major components are a headworks facility, aeration, basin and clarifiers, disinfection unit, and a facultative sludge lagoon for solids removed during treatment. The following sections address subcategories under S4.F of the NPDES Permit.

Current and Projected 5 Year Loading

Loadings to the North Wastewater Treatment Plant are indicated in Table 1. Average daily flows were 724,000 GPD, which represents 48.3% of the treatment plants 1.5 MGD estimated hydraulic loading capacity.

TABLE 1 - NORTH WASTEWATER TREATMENT PLANT LOADING				
PARAMETER	DESIGN & PERMIT LIMIT	2015 LOADING	2014-2015 PERCENT INCREASE	EST. 2020 LOADING
Hydraulic Loading (mgd) % of Design Capacity	1.5	.724 48.30%	3%	.839 56%
BOD5 (lb/day) % of Design Capacity	3,128	1501.8 48.1%	-21%	1740 56%
TSS (lb/day) % of Design Capacity	3,128	1273.3 40.80%	-6%	1475 48%

The expansion of the North Wastewater Treatment Plant was completed in early 2009. The North Wastewater Treatment Plant was fully operational on February 26, 2009.

Performance and Compliance with Permit Limitations

Table 2 indicates the permit limitations of the given constituents and resulting parameters with values beyond those limitations at the North Wastewater Treatment Plant. All other parameter limits were met during the course of the year.

TABLE 2 - NORTH WASTEWATER TREATMENT PLANT PERMIT LIMITATION COMPLIANCE				
PARAMETER	UNITS	VALUE	LIMIT TYPE	EXCEEDED
BOD5	mg/L	10	Weekly and monthly averages	No
BOD5	lb/day	63	Weekly and monthly averages	No
BOD5	% removal	95	Monthly Average	No
TSS	mg/L	15	Weekly and monthly averages	No
TSS	lb/day	94	Weekly and monthly averages	No
TSS	% removal	90	Monthly Average	No
pH	Standard Units	6.0	Daily minimum	No
pH	Standard Units	8.5	Daily minimum	No
Fecal Coliform	Count/100mL	100	Monthly Average	No
Fecal Coliform	Count/100mL	200	Weekly Average	No
Ammonia	mg N/L	1.0	Monthly Average	No
Ammonia	mg N/L	1.0	Daily maximum	No
Dissolved Oxygen	mg/L	2.9	Minimum daily average	No
Total residual Chlorine	mg/L	.05	Daily Average	No

*Chlorine may be used for process control or disinfection if the ultraviolet disinfection unit fails. It is not a normal component of the treated water.

North Wastewater Treatment Plant Outfall Inspection - 215

On September 2 2015 West Richland city employees Nicholas Berg performed the annual outfall inspection in the Yakima River at latitude 46.31133 degrees north and longitude 119.33772 degrees west. The diffuser was free of obstructions and flowing freely. Nick was unable to capture a clear photo of the outfall manifold located in the bottom of the river.

North Wastewater Treatment Plant Facultative Sludge Lagoon

During 2015 calendar year the Facultative Lagoon piezometer and lysimeter were monitored on a monthly basis. The results of each are shown in Table 3.

TABLE 3 - NORTH WASTEWATER TREATMENT PLANT FACULTATIVE SLUDGE LAGOON			
MONTH	SHALLOW PIEZOMETER	DEEP PIEZOMETER	GALLONS IN LYSIMETER
January	10'2"	10'2"	
February	9'4"	9'5"	
March	8'9"	8'10"	2 Gallons
April	N/A	N/A	
May	9'0"	9'1"	
June	11'6"	10'0"	2 Gallons
July	DRY	11'8"	
August	DRY	11'9"	
September	DRY	11'11"	2 Gallons
October	DRY	12'0"	
November	N/A	N/A	
December	9'4"	9'4"	2 Gallons

During months when the water level is the same in both piezometers no samples are required. During months when the shallow piezometer is dry and there is water in the deep piezometer, the water that is collected in the lysimeter shall be tested for the same parameters as the N.T.P. effluent on a quarterly basis.

Sludge Quantity and Quality

During the 2015 calendar year approximately 273,001 pounds of sludge were produced at the West Richland North Waste Water Treatment Plant. This amount was calculated using the following formula:

(Weekly Waste Activated Sludge Concentration in mg/L x Daily Gallons wasted) x 8.34 = Daily Value.

Sum of Daily Values = 2015 Total Pounds of Sludge.



SEPT 2, 2015

Table 4 represents the 2015 waste in pounds.

TABLE 4 - 2015 WASTE IN LBS.			
January	41,541	July	22,032
February	25,510	August	14,659
March	28,910	September	19,036
April	23,734	October	23,825
May	25,634	November	22,778
June	24,724	December	26,252
Total LBS			273,001
TONS – Dry Weight			136.5 TON

ENTIRE WASTEWATER TREATMENT SYSTEM

Aspects of the entire wastewater treatment system that were addressed are included in the following sections.

Industrial Dischargers

Currently there are no significant industrial dischargers to the City of West Richland Wastewater Treatment System. If any industry proposes to locate in West Richland, the applicable requirements under Section S6.C of the NPDES Permit will be addressed.

The City currently has two customers that are classified industrial dischargers, Red Mountain Wine Estates, LLC and Ascentia Wine Estates, LLC. Red Mountain Wine Estates, LLC is a wine production facility considered a non-significant industrial user located in the Red Mountain Industrial Park on Keene Road. This facility produces approximately 140,000 cases of premium white wine annually. Ascentia Wine Estates, LLC is a barrel storage facility considered a non-significant industrial user, came on-line February 1, 2010. The wastewater discharge from both of these facilities into the City's sanitary sewer system is routinely monitored and sampled to ensure compliance with the City issued Wastewater User Agreement.

PROJECT FLOWS, LOADING AND POPULATION

Table 1 and Table 2 summarize the projected flows and loads for the entire system as documented in the Facility Plan dated September 2005.

The project flows in the approved Facility Plan created by HDR Engineer, Inc. are based on an assumed 3 percent population growth rate and the commercial and industrial development of 34 acres over the 20 year timeframe. The combined total flow increase between 2002 and 2022 of 0.561 MGD (average) represents a growth rate of 3.4 percent and includes increased inflow and infiltration (I 7 I Report, City of West Richland, 2005) due to new developments plus industrial and commercial development and growth. The maximum peak hour conveyance capacity of the combined service area was estimated based on past recorded flows from the North Service Area and information from the South Sewer Report. The combined average day capacity amounts to 0.45 (North Service Area) and 0.93 (South service Area) or a total maximum month capacity of 1.57 MGD respectively. The 2002 report uses a 2.5 population equivalents (PE) per equivalent residential unit (ERU). The population within the combined service area in February 2005 was 8130 resulting in 3196 ERU's. The Phase 1 expansion would provide capacity, which exceeds that of the combined serviced area conveyance system. However, future improvements to the collection system and/or the transfer of flow from other or new service areas are possible.

Table 1: Projected Flows for South and North Service Area

	Average Daily Flow	Maximum Monthly Flow	Peak Hourly Flow
2002	0.565 MGD	0.679 MGD	1.69 MGD
20 Year Design (2022)	1.126 MGD	1.352 MGD	3.31 MGD

Table 2: Projected Loads for South and North Service Area

	BOD [lb/f]		TSS [lb/d]		N [lb/d]	
	AVG	Max Month	AVG	Max Month	AVG	Max Month
2002	1000	1200	1000	1200	185	223
20 Year Design (2022)	2000	2400	2000	2400	370	444

2025 –Year Design Flows and Loads table below summarizes the design flows and loads of 2025 to 2055. For planning purposes, the higher values should be used for sit lay-out while the lower values may be used for mid-term capacity improvement planning.

2025-Year Design Flows and Loads

	Average Day		Maximum Month		Peak Hour	
	Low	High	Low	High	Low	High
Flow [MGD]	0.71	1.16	0.85	1.39	2.11	3.45
BOD [lb/d]	1450	2070	1390	2490	-	-
TSS [lb/d]	1490	2070	1780	2490	-	-
TKN[lil/d]	311	480	389	576	-	-

Maximum month values presented in the following two tables was derived from the Facility Plan dated September 2005. The average to maximum month ratio was confirmed during the flows and loads review.

Updated BOD for Combined Service Area

(actual values are bolded)

	Average Daily Load [lb/d]		Maximum Monthly Load [lb/d]	
	2005 updated 2.5%	2002 Report 3.4%	2005 Update	2002 Report
2002	830	1000	1000	1200
2004	860	1070	1032	1290
2022	1350	2000	1620	2400
2025	1450	2070	1740	2490
2055	3080	5880	3696	7060

Updated TSS for Combined Service Area

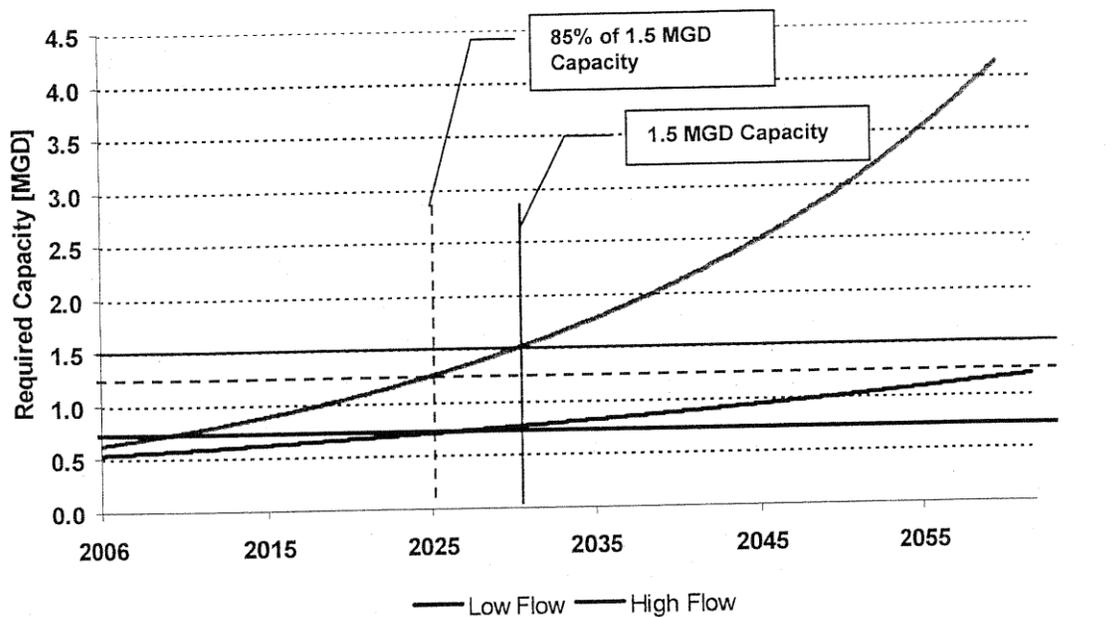
(actual values are bolded)

	Average Daily Load [lb/d]		Maximum Monthly Load [lb/d]	
	2005 updated 2.5%	2002 Report 3.4%	2005 Update	2002 Report
2002	700	1000	840	1200
2004	880	1070	1060	1290
2022	1380	2000	1660	2400
2025	1490	2070	1780	2490
2055	3140	5880	3770	7060

Required Capacity Comparison for High and Low Flow Scenario

Based on the high flow projections provided in the following table 1.5 MGD capacity will provide sufficient capacity throughout the year 2025, at which point planning for the next expansion would begin. A third treatment train would extend the plant capacity into the year 2040 and a fourth treatment train through 2050. The West Richland WWTP site could accommodate four Biolac treatment trains including the necessary solids storage.

The current growth projects the combined service area which estimates a maximum average flow of 1.5 MGD for the combined service area. Based on the projected maximum demand and combined service area conveyance system capacity, two treatment trains would be sufficient. An increase in demand beyond the 1.5 MGD mark would occur only through a service area expansion or the addition of significant industrial contribution. Another potential reason for treatment demand increase would be reused demand driven wastewater import from other service areas.



Facility Plan, September 2005

ATTACHMENT NO. 1

2015 Annual North Wastewater Treatment Plant Report

CITY OF WEST RICHLAND

POPULATION SERVED 13,198 NORTH WASTEWATER TREATMENT PLANT REPORT 2015 ANNUAL

DATE	INFLUENT				EFFLUENT										
	BOD		TSS		TEMP C	PH	DO	BOD MG/L	% BOD REMOV	LB. BOD DISCH.	TSS MG/L	% SS RMOVD	LB SS DISCH.	FECAL COLIF.	TOTAL GAL/MO.
	MG/L	LB/D	MG/L	LB/D											
JANUARY	330.6	1874.5	220.8	1195.3	7.78	6.96	6.7	4	98	21.5	4	97	22	2.8	21,831
FEBRUARY	277.2	1508.8	197.1	1073.7	13.6	7.04	7.1	4.8	98.6	27	4.8	96.6	27.7	3.1	19,079
MARCH	304.1	1660.8	259	1415.2	15.1	6.74	6.5	3.5	98.2	20.8	3.5	98	23.7	10.9	20,984
APRIL	274.1	1596.5	232.5	1353.9	16.7	6.6	5.5	3.7	98.2	21.4	4.6	96.9	26.9	7.2	20,248
MAY	284.6	1586.7	225.6	1256	19.19	6.7	5.4	5.1	97.3	28.9	5.8	94.3	32.9	2.7	22,305
JUNE	222.4	1225.3	206.1	1135.4	22.54	6	3.1	2.6	98.5	15.4	3.5	96.3	20.7	6.6	23,015
JULY	217.8	1307.9	223	1339.1	23.34	6.4	5.9	2.4	98.7	14.2	1.6	98.2	9.8	4.6	23,783
AUGUST	211.3	1312.3	198.8	1235.6	22.5	6.69	5.6	3.1	98.5	18.9	1.3	99	7.8	3.2	23,477
SEPTEMBER	245.2	1484.2	210	1288.8	20.99	6.82	5.6	3	98.6	18.1	4	96.8	23.7	10.2	22,39
OCTOBER	258.8	1549.5	219	1313	19.6	6.84	5.6	2.5	98.8	14.5	3	97.2	17.6	5.8	22,951
NOVEMBER	244.7	1459.6	220.4	1311.5	15.2	6.89	6.5	3.7	98	21.8	4.5	95.7	27.2	3.3	22,088
DECEMBER	242.2	1455.8	230	1382.4	12	6.79	6.5	5.1	97.4	30.7	7.2	96.3	43	4	22,447
TOTAL										253.2			283		284,546
MAX	330.6	1874.5	259	1415.2	23.34	7.04	7.1	5.1	98.8	30.7	7.2	99	43	10.9	23,783
MIN	211.3	1225.3	197.1	1073.7	7.78	6	3.1	2.4	96.6	14.2	1.3	94.3	7.8	2.7	19,079
AVG	259.417	1501.83	220.19	1273.33	17.378	6.7056	5.833	3.625	96.06667	21.1	3.98333333	96.858333	23.583333	4.772287	22,0455

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND I BELIEVE THE SUBMITTED INFORMATION IS TRUE ACCURATE AND COMPLETE. I AM AWARE THAT THE PENALTIES FOR SUBMITTING FALSE INFORMATION MAY INCLUDE FINES UP TO \$25,000, AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.

SIGNATURE _____

TITLE _____ **W.W.T.P. OPERATOR IV**

ATTACHMENT NO. 2
Facultative Sludge Lagoon
Water Bacteriological Analysis



3801 W. Van Giesen Street * West Richland, WA 99353 *
 WWTP Laboratory * (509) 967-8240 *

Lagoon Underdrain

Month/Year March 2015

Day Sample Collected	BOD mg/l	TSS mg/l	Fecal Coliform	NH3 mg/l
1				
2				
3				
4				
5			<1.0	
6				
7				
8				
9				
10				
11	4.3	1	<1.0	<0.2
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				

Comments

Lab Tech

Sheriff L. Deugate

Supervisor

Randy Paulson



3801 West Van Giesen Avenue * West Richland, WA 99353 *
WWTP Laboratory * (509) 967-8240 *

Lagoon Underdrain

Month/Year: June 2015

Day Sample Received	BOD mg/L	TSS mg/L	Fecal Coliform	NH3 mg/L
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18			E < 2.0	
19				
20				
21				
22				
23	1.11	12		< 0.2
24				
25				
26				
27				
28				
29				
30				
31				

Comments:

Lab Tech *[Signature]*
Supervisor *[Signature]*



3801 West Van Giesen Avenue * West Richland, WA 99353 *
WWTP Laboratory * (509) 967-8240 *

Lagoon Underdrain

Month/Year: September 2015

Day Sample Received	BOD mg/L	TSS mg/L	Fecal Coliform	NH3 mg/L
1				
2				
3				
4				
5				
6				
7				
8				
9	9.0	4.0	< 2.0	< 0.2
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				

Comments:

Lab Tech *Rachel L. Miller*
Supervisor *Randy P...*



3801 West Van Giesen Avenue * West Richland, WA 99353 *
WWTP Laboratory * (509) 967-8240 *

Lagoon Underdrain

Month/Year: December 2015

Day Sample Received	BOD mg/L	TSS mg/L	Fecal Coliform	NH3 mg/L
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16	7.6	18.0	< 2.0	< 0.2
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				

Comments:

Lab Tech *Rachel Walker*
Supervisor *Randy Lee*

ATTACHMENT NO. 3

***Sampling Results from Wastewater Treatment Plant
North Treatment Plant***



3801 W. Van Giesen Street * West Richland, WA 99353 *
 WWTP Laboratory * (509) 967-8240 *

WWTP

Month/Year Jan-15

Day Sample Collected	INFLUENT		EFFLUENT			
	BOD mg/l	TSS mg/l	BOD mg/l	TSS mg/l	Fecal Coliform	NH3 mg/l
1						
2						
3						
4						
5					3.6	
6						
7						
8	311.7	204.8	4.9	2		<0.2
9						
10						
11						
12					2.7	
13						
14						
15						
16	268.8	218.2	3.9	6		<0.2
17						
18						
19						
20						
21	372.8	215.6	3.5	6	2.3	<0.2
22						
23						
24						
25						
26					2.6	
27						
28						
29	369.2	244.4	3.6	2		<0.2
30						
31						

Comments

Lab Tech *Sherry L. Dengel*
 Supervisor *Nicholas J. Prunty*



3801 W. Van Giesen Street * West Richland, WA 99353 *
 WWTP Laboratory * (509) 967-8240 *

WWTP

Month/Year February 2015

Day Sample Collected	INFLUENT		EFFLUENT			
	BOD mg/l	TSS mg/l	BOD mg/l	TSS mg/l	Fecal Coliform	NH3 mg/l
1						
2					<2.0	
3						
4	292.8	205.9	4.6	1		<0.2
5						
6						
7						
8						
9					3.2	
10						
11						
12	227.6	196	2.6	6		<0.2
13						
14						
15						
16						
17					<2.0	
18						
19						
20	219	179.6	7.4	5		<0.2
21						
22						
23					5	
24						
25	369.6	206.9	4.5	7		<0.2
26						
27						
28						
29						
30						
31						

Comments

Lab Tech

Supervisor

Sherry L. DeAngelo
Randy Paulson



3801 W. Van Giesen Street * West Richland, WA 99353 *
 WWTP Laboratory * (509) 967-8240 *

WWTP

Month/Year **March** **2015**

Day Sample Collected	INFLUENT		EFFLUENT			
	BOD mg/l	TSS mg/l	BOD mg/l	TSS mg/l	Fecal Coliform	NH3 mg/l
1						
2					7.3	
3						
4						
5	275	269.1	4.8	4		<0.2
6						
7						
8						
9					6.8	
10						<0.2
11	309.8	245.2	3.5	5		<0.2
12						
13						
14						
15						
16					14.6	
17						
18	321.5	261	3	4		<0.2
19						
20						
21						
22						
23					15	
24						
25	310.1	260.7	2.7	3		<0.2
26						
27						
28						
29						
30						
31						

Comments

Lab Tech *Sherry L. Dendale*
 Supervisor *Randy F...*



3801 W. Van Giesen Street * West Richland, WA 99353 *
 WWTP Laboratory * (509) 967-8240 *

WWTP

Month/Year April 2015

Day Sample Collected	INFLUENT		EFFLUENT			
	BOD mg/l	TSS mg/l	BOD mg/l	TSS mg/l	Fecal Coliform	NH3 mg/l
1					10.2	
2	289.5	241.5	4.4	6		<0.2
3						
4						
5						
6					8	
7						
8						
9						
10	251.4	223.7	3.7	5		<0.2
11						
12						
13					5.9	
14						
15						
16	256.2	225	4.7	7		<0.2
17						
18						
19						
20					4.5	
21						
22	300.6	251.8	3.1	2		<0.2
23						
24						
25						
26						
27					7.2	
28						
29						
30	273	220.3	2.5	3		<0.2
31						

Comments

Lab Tech
 Supervisor

Robert L. [Signature]
Randy [Signature]



3801 W. Van Giesen Street * West Richland, WA 99353 *
 WWTP Laboratory * (509) 967-8240 *

WWTP

Month/Year **May** **2015**

Day Sample Collected	INFLUENT		EFFLUENT			
	BOD mg/l	TSS mg/l	BOD mg/l	TSS mg/l	Fecal Coliform	NH3 mg/l
1						
2						
3						
4					E2.1	
5						
6	261.6	237	2.6	3		<0.2
7						
8						
9						
10						
11					<2.0	
12						
13						
14						
15	322.2	248.1	8.7	5		<0.2
16						
17						
18					<2.0	
19						<0.2
20						
21	254.4	206	3.1	3		<0.2
22						
23						
24						
25						
26					4.6	
27	300.3	211.1	6.1	12		0.3
28						<0.2
29						
30						
31						

Comments

Lab Tech *[Signature]*
 Supervisor *[Signature]*



3801 West Van Giesen Avenue * West Richland, WA 99353 *
 WWTP Laboratory * (509) 967-8240 *

WWTP

Month/Year: June 2015

Day Sample Received	INFLUENT		EFFLUENT			
	BOD mg/L	TSS mg/L	BOD mg/L	TSS mg/L	Fecal Coliform	NH3 mg/L
1					8.4	
2						
3						
4						
5	229.2	218	3.4	8		<0.2
6						
7						
8					12.6	
9						
10						
11	243.6	216	2	3		<0.2
12						
13						
14						
15					4.4	
16						
17						
18	205.4	188.2	2	2		<0.2
19						
20						
21						
22					E 1.1	
23						
24	211.2	202	3	1		<0.2
25						
26						
27						
28						
29						
30						
31						

Comments:

Lab Tech *[Signature]*
 Supervisor *Randy Pass*



3801 West Van Giesen Avenue * West Richland, WA 99353 *
 WWTP Laboratory * (509) 967-8240 *

WWTP

Month/Year: July 2015

Day Sample Received	INFLUENT		EFFLUENT			
	BOD mg/L	TSS mg/L	BOD mg/L	TSS mg/L	Fecal Coliform	NH3 mg/L
1					4.4	
2	233.3	192.0	2.4	1.0		<0.2
3						
4						
5						
6					12.9	
7						
8	232.2	248.0	2.1	1.0		<0.2
9						
10						
11						
12						
13						
14					2.0	
15						
16	197.0	188.0	2.1	1.0		<0.2
17						
18						
19						
20						
21					2.2	
22	207.6	196.0	2.7	1.0		<0.2
23						
24						
25						
26						
27						
28					E 1.6	
29						
30						
31	217.8	223.0	2.5	4.0		<0.2

Comments:

Lab Tech *Zachary J. Tuller*
 Supervisor *Randy Pat*



3801 West Van Giesen Avenue * West Richland, WA 99353 *
 WWTP Laboratory * (509) 967-8240 *

WWTP

Month/Year: August 2015

Day Sample Received	INFLUENT		EFFLUENT			
	BOD mg/L	TSS mg/L	BOD mg/L	TSS mg/L	Fecal Coliform	NH3 mg/L
1						
2						
3					2.4	
4						
5	209.9	200.0	2.9	2.0		<0.2
6						
7						
8						
9						
10					6.0	
11						
12						
13						
14	210.2	216.0	3.2	1.0		<0.2
15						
16						
17					2.0	
18						
19						
20	213.2	178.0	3.0	1.0		<0.2
21						
22						
23						
24					2.2	
25						
26	212.1	201.9	3.1	1.0		<0.2
27						
28						
29						
30						
31						

Comments:

Lab Tech *[Signature]*
 Supervisor *[Signature]*



3801 West Van Giesen Avenue * West Richland, WA 99353 *
 WWTP Laboratory * (509) 967-8240 *

WWTP

Month/Year: **Septmenber 2015**

Day Sample Received	INFLUENT		EFFLUENT			
	BOD mg/L	TSS mg/L	BOD mg/L	TSS mg/L	Fecal Coliform	NH3 mg/L
1					9.1	
2						
3	282.0	202.0	3.6	3.0		<0.2
4						
5						
6						
7						
8					9.6	
9	218.0	186.0	3.1	6.0		<0.2
10						
11						
12						
13						
14						
15					18.0	
16						
17	253.2	224.0	2.9	3.0		<0.2
18						
19						
20						
21					8.6	
22						
23						
24						
25	256.2	222.0	3.6	6.0		<0.2
26						
27						
28					5.7	
29						
30	216.8	216.0	2.0	2.0		<0.2
31						

Comments:

Lab Tech *Randy L. Smith*
 Supervisor *Randy Parr*



3801 West Van Giesen Avenue * West Richland, WA 99353 *
 WWTP Laboratory * (509) 967-8240 *

WWTP

Month/Year: **October 2015**

Day Sample Received	INFLUENT		EFFLUENT			
	BOD mg/L	TSS mg/L	BOD mg/L	TSS mg/L	Fecal Coliform	NH3 mg/L
1						
2						
3						
4						
5					6.6	
6						
7						
8	262.2	220.0	2.0	1.0		<0.2
9						
10						
11						
12					8.0	
13						
14	231.8	216.0	2.6	6.0		<0.2
15						
16						
17						
18						
19						
20					2.7	
21						
22						
23	225.6	214.0	2.7	2.0		<0.2
24						
25						
26					5.8	
27						
28						
29	315.5	226.0	2.6	3.0		<0.2
30						
31						

Comments:

Lab Tech *Robert H. Hallie*
 Supervisor *Randy Paul*



3801 West Van Giesen Avenue * West Richland, WA 99353 *
 WWTP Laboratory * (509) 967-8240 *

WWTP

Month/Year: November 2015

Day Sample Received	INFLUENT		EFFLUENT			
	BOD mg/L	TSS mg/L	BOD mg/L	TSS mg/L	Fecal Coliform	NH3 mg/L
1						
2					3.1	
3						
4						
5	229.2	209.6	2.7	3.0		<0.2
6						
7						
8						
9					3.1	
10						
11						
12	253.2	228.0	3.0	3.2		<0.2
13						
14						
15						
16					3.1	
17						
18	252.6	234.0	5.0	2.6		<0.2
19						
20						
21						
22						
23					4.0	
24						
25	243.6	210.0	3.9	9.0		<0.2
26						
27						
28						
29						
30						
31						

Comments:

Lab Tech *[Signature]*
 Supervisor *[Signature]*



3801 West Van Giesen Avenue * West Richland, WA 99353 *
 WWTP Laboratory * (509) 967-8240 *

WWTP

Month/Year: December 2015

Day Sample Received	INFLUENT		EFFLUENT			
	BOD mg/L	TSS mg/L	BOD mg/L	TSS mg/L	Fecal Coliform	NH3 mg/L
1					5.0	
2						
3						
4	234.0	206.0	4.4	7.0		<0.2
5						
6						
7						
8					E 2.0	
9						
10	229.8	222.0	4.4	8.0		<0.2
11						
12						
13						
14					6.3	
15						
16						
17						
18	212.4	214.0	4.4	8.0		<0.2
19						
20						
21					4.8	
22						
23	233.7	228.0	6.1	8.0		<0.2
24						
25						
26						
27						
28					E 1.8	
29						
30						
31	301.2	280.0	6.2	5.0		<0.2

Comments:

Lab Tech *[Signature]*
 Supervisor *[Signature]*

ATTACHMENT NO. 4
Critical Season Temperature Log

WEST RICHLAND
EFFLUENT
CRITICAL SEASON TEMPERATURE
Reference Permit #WMA0031063

JUNE 2015

DAY	DATE	MAX TEMP C
Monday	6/1/2015	22.86
Tuesday	6/2/2015	22.01
Wednesday	6/3/2015	21.53
Thursday	6/4/2015	21.8
Friday	6/5/2015	22.35
Saturday	6/6/2015	22.87
Sunday	6/7/2015	23.49
Monday	6/8/2015	24.11
Tuesday	6/9/2015	24.41
Wednesday	6/10/2015	24.22
Thursday	6/11/2015	23.86
Friday	6/12/2015	23.45
Saturday	6/13/2015	22.79
Sunday	6/14/2015	22.8
Monday	6/15/2015	22.98
Tuesday	6/16/2015	23.32
Wednesday	6/17/2015	23.53
Thursday	6/18/2015	23.66
Friday	6/19/2015	23.62
Saturday	6/20/2015	23.45
Sunday	6/21/2015	23.22
Monday	6/22/2015	23.14
Tuesday	6/23/2015	23.33
Wednesday	6/24/2015	23.51
Thursday	6/25/2015	23.89
Friday	6/26/2015	24.55
Saturday	6/27/2015	25.2
Sunday	6/28/2015	25.75
Monday	6/29/2015	25.85
Tuesday	6/30/2015	26.01

JULY 2015

DAY	DATE	MAX TEMP C
Wednesday	7/1/2015	26.19
Thursday	7/2/2015	26.2
Friday	7/3/2015	26.34
Saturday	7/4/2015	26.42
Sunday	7/5/2015	25.98
Monday	7/6/2015	25.85
Tuesday	7/7/2015	26.06
Wednesday	7/8/2015	26.17
Thursday	7/9/2015	26.23
Friday	7/10/2015	26.03
Saturday	7/11/2015	24.72
Sunday	7/12/2015	24.11
Monday	7/13/2015	24.44
Tuesday	7/14/2015	24.8
Wednesday	7/15/2015	24.91
Thursday	7/16/2015	24.55
Friday	7/17/2015	24.38
Saturday	7/18/2015	24.7
Sunday	7/19/2015	25.12
Monday	7/20/2015	25.29
Tuesday	7/21/2015	25.2
Wednesday	7/22/2015	24.8
Thursday	7/23/2015	24.59
Friday	7/24/2015	24.6
Saturday	7/25/2015	24.54
Sunday	7/26/2015	24.12
Monday	7/27/2015	23.79
Tuesday	7/28/2015	23.88
Wednesday	7/29/2015	24.32
Thursday	7/30/2015	24.85
Friday	7/31/2015	25.33

AUGUST 2015

DAY	DATE	MAX TEMP C
Saturday	8/1/2015	25.69
Sunday	8/2/2015	25.71
Monday	8/3/2015	25.31
Tuesday	8/4/2015	24.92
Wednesday	8/5/2015	24.72
Thursday	8/6/2015	24.45
Friday	8/7/2015	24.5
Saturday	8/8/2015	24.65
Sunday	8/9/2015	24.45
Monday	8/10/2015	24.62
Tuesday	8/11/2015	25.3
Wednesday	8/12/2015	25.9
Thursday	8/13/2015	26.33
Friday	8/14/2015	26.1
Saturday	8/15/2015	24.97
Sunday	8/16/2015	24.7
Monday	8/17/2015	24.9
Tuesday	8/18/2015	25
Wednesday	8/19/2015	26.2
Thursday	8/20/2015	26.2
Friday	8/21/2015	24.71
Saturday	8/22/2015	24.3
Sunday	8/23/2015	24.04
Monday	8/24/2015	24.32
Tuesday	8/25/2015	24.6
Wednesday	8/26/2015	24.81
Thursday	8/27/2015	24.84
Friday	8/28/2015	24.51
Saturday	8/29/2015	24.3
Sunday	8/30/2015	23.71
Monday	8/31/2015	22.9

SEPTEMBER 2015

DAY	DATE	MAX TEMP C
Tuesday	9/1/2015	23.08
Wednesday	9/2/2015	23.1
Thursday	9/3/2015	23.1
Friday	9/4/2015	22.7
Saturday	9/5/2015	22.08
Sunday	9/6/2015	21.6
Monday	9/7/2015	22.2
Tuesday	9/8/2015	22.6
Wednesday	9/9/2015	23.23
Thursday	9/10/2015	23.58
Friday	9/11/2015	23.8
Saturday	9/12/2015	24.06
Sunday	9/13/2015	24
Monday	9/14/2015	23.59
Tuesday	9/15/2015	22.6
Wednesday	9/16/2015	22
Thursday	9/17/2015	22.1
Friday	9/18/2015	22.31
Saturday	9/19/2015	22.3
Sunday	9/20/2015	22.7
Monday	9/21/2015	22.81
Tuesday	9/22/2015	22.5
Wednesday	9/23/2015	22.07
Thursday	9/24/2015	21.8
Friday	9/25/2015	21.51
Saturday	9/26/2015	20.7
Sunday	9/27/2015	21.8
Monday	9/28/2015	19.8
Tuesday	9/29/2015	20
Wednesday	9/30/2015	20.1