



**Oak Lodge Water District Office
14496 SE River Road
Oak Grove, OR 97267
January 21st, 2020 at 5:00 p.m.**

1. Call to Order and Flag Salute
2. Recess to Executive Session

Convene Executive Session under ORS 192.660(2)(i) – to review and evaluate the employment-related performance of the chief executive officer of any public body, a public officer, employee or staff member who does not request an open hearing.

3. Adjourn Executive Session –Board may take action if necessary
4. Call for Public Testimony

Members of the public are welcome to testify for a maximum of three minutes on each agenda item.

5. Consent Agenda
 - December 2019 Financial Reports
 - December 17, 2019 Board Meeting Minutes
6. Annual January Board Selection of Board Officers
7. Appointment of Budget Committee Members 2020/2021
8. Local Government Investment Pool (LGIP) Contact Registration and Permissions Update - Resolution 20-01
9. M 36 Non-Revenue Water Phase I completed and Phase II Draft Audit Report from Cavanaugh & Associates, P.A.
10. 2018/2019 Financial Statements as Audited by Moss Adams, LLP.

11. Department Reports
 - Human Resources
 - Finance
 - Plant Operations
 - Technical Services
 - Field Operations

12. Call for Public Comment

13. Business from the Board

14. Recess to Executive Session

Convene Executive Session under ORS 192.660(2)(d) – to conduct deliberations with persons designated by the governing body to carry on labor negotiations.

15. Adjourn Executive Session –Board may take action if necessary

Adjourn



**Oak Lodge Water District Office
14496 SE River Road
Oak Grove, OR 97267
December 21, 2020 at 5:00 p.m.**

1. Call to Order and Flag Salute
2. Convene to Executive Session under ORS 192.660(2)(i) to review and evaluate the employment-related performance of the chief executive officer of any public body, a public officer, employee or staff member who does not request an open hearing.
3. Adjourn Executive Session – Board may take action if necessary.

OAK LODGE
WATER SERVICES
AGENDA ITEM

Agenda Item: Executive Session
Item No.: 2
Presenters: N/A

Background:

Convene Executive Session under ORS 192.660(2)(i) – to review and evaluate the employment-related performance of the chief executive officer of any public body, a public officer, employee or staff member who does not request an open hearing.

OAK LODGE
WATER SERVICES
AGENDA ITEM

Agenda Item: Adjourn Executive Session
Item No.: 3
Presenters: N/A

Background:

Adjourn Executive Session and make any necessary motions as a result of Executive Session discussions.



AGENDA ITEM

Agenda Item: Call for Public Testimony
Item No.: 4
Presenters: N/A

Background:

Members of the public are invited to identify agenda items on which they would like to comment or provide testimony. The Board may elect to limit the total time available for public comment or for any single speaker depending on meeting length.



CONSENT AGENDA

To: Board of Directors
From: Sarah Jo Chaplen, General Manager
Agenda Item: Consent Agenda
Item No.: 5
Date: January 21, 2020

Background:

The Board of Directors has a standing item on the regular monthly meeting agenda called "Consent Agenda." This subset of the regular agenda provides for the Board to relegate routine business functions not requiring discussion to a consent agenda where all included items can be acted upon by a single act.

The Consent Agenda includes:

- 1. December 2019 Financial Reports**
- 2. December 17, 2019 Board Meeting Minutes**

Board members may request to remove an item from the Consent Agenda to discuss separately.

Options for Consideration:

1. Approve the consent agenda as listed on the meeting agenda.
2. Request one or more items listed on the consent agenda be pulled from the consent agenda for discussion.

Recommendation:

Approve the items listed under the Consent Agenda.

Sample motion: *"I move to approve the consent agenda."*

Approved _____	Date _____
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MONTHLY FINANCIAL REPORT

To: Board of Directors
From: Rob Moody
Agenda Item: December 2019 Financial Reports
Item No.: 5a
Date: January 21, 2020

Reports:

- December 2019 Monthly Overview
- December 2019 Monthly Cash and Investment Balances Report
- December 2019 Budget to Actual Report
- December 2019 Budget Account Roll Up Report

**Oak Lodge Water Services
Monthly Overview
December 2019**

This report summarizes the revenues and expenditures for December 2019. Also incorporated in this report are account balances, including all cash and investment activity as well as checks and withdrawals.

The District's liquid cash and investment assets equal \$14.18 million as of the end of December 2019; consisting of \$644 thousand in checking, and \$13.54 million in the State Local Government Investment Pool (LGIP).

The District's checks, electronic withdrawals and bank drafts total \$1.66 million for December 2019.

Below is a table identifying the District's three principal sources of service charges in each fund with a comparison between annual budget estimates and year-to-date service charge fees.

GL Account	Service Charge	Budget Estimate	Period Amount	Year-to-Date Amount	Percentage of Budget
10-00-4210	Water sales-CRW	\$ 32,000	\$ -	\$ 16,836	52.61%
10-00-4211	Water sales	4,265,000	300,906	2,123,748	49.79%
20-00-4212	Wastewater charges	8,200,000	740,725	4,095,582	49.95%
30-00-4213	Watershed protection	1,530,000	130,592	774,138	50.60%
	Subtotal	\$ 14,027,000	\$ 1,172,223	\$ 7,010,304	49.98%

The percentage of budget is calculated by taking the ending balance and dividing it by the budget. With respect to revenues above, the percentage of budget is affected by seasonal variations. The expectation is that the District would recognize a greater percentage of revenue in the first half of the fiscal year than in the second half. The numbers above indicate a shortfall in revenue versus budget for the current fiscal year.

With respect to expenditures, at the end of December, the percentage of budget spent or billed should be around 50.00%. Certain line items are spent all at once, such as Worker's Compensation, which we pay once a year in July.

Low Income Rate Relief Program Overview

The District allows eligible customers to obtain a discounted rate on a portion of their bill. The District budgets resources to fund the revenue losses due to the program at the rate of 0.50% of budgeted service charge revenue. The budgeted amount serves as a cap to the program's cost which can only be exceed with approval from the District's Board of Directors.

Below is a table identifying the number of accounts in the program and an estimated monthly discount and year-to-date value based on a single-family residential account with a standard 20 GPM Water Meter and 6 CCF of water consumption per month.

Total Number of Accounts	Discount	Budget	Estimated Monthly Discount	Estimated Year-to-Date Discount	Estimated Percentage of Budget
134	Low Income Rate Relief	\$ 70,135	\$ 5,575	\$ 31,427	44.81%

Oak Lodge Water Services District

Account Balances As of:		
December 31, 2019	Interest Rate	Balance
Account		
Wells Fargo Bank Checking-3552	0.25%	\$ 643,863
LGIP	2.25%	\$ 13,540,945
Total		\$ 14,184,807

General Ledger
Budget to Actual



User: jeff
Printed: 1/9/2020 1:22:05 PM
Period 06 - 06
Fiscal Year 2020

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
05	Administrative Services					
	NonDivisional Revenue					
05-00-4610	Investment revenue	0.00	1,171.84	1,171.84	0.00	0.00
05-00-4630	Miscellaneous revenues	2,500.00	0.00	31.44	0.00	1.26
	<i>Revenue</i>	<i>2,500.00</i>	<i>1,171.84</i>	<i>1,203.28</i>	<i>0.00</i>	<i>48.13</i>
	NonDivisional	2,500.00	1,171.84	1,203.28	0.00	48.13
	AdminFinance					
	<i>Personnel Services</i>					
05-01-5110	Regular employees	638,000.00	50,238.28	307,365.03	0.00	48.18
05-01-5120	Temporaryseasonal employees	10,000.00	0.00	0.00	0.00	0.00
05-01-5130	Overtime	5,000.00	523.06	3,097.50	0.00	61.95
05-01-5210	Healthdental insurance	94,000.00	7,500.97	45,253.78	0.00	48.14
05-01-5230	Social security	50,000.00	2,882.09	20,584.80	0.00	41.17
05-01-5240	Retirement	134,000.00	14,296.58	68,054.98	0.00	50.79
05-01-5250	TrimetWBF	6,000.00	388.55	2,377.24	0.00	39.62
05-01-5260	Unemployment	6,000.00	0.00	0.00	0.00	0.00
05-01-5270	Workers compensation	9,000.00	0.00	7,698.20	0.00	85.54
05-01-5290	Other employee benefits	4,000.00	0.00	0.00	0.00	0.00
	<i>Personnel Services</i>	<i>956,000.00</i>	<i>75,829.53</i>	<i>454,431.53</i>	<i>0.00</i>	<i>47.53</i>
	<i>Materials & Services</i>					
05-01-6110	Legal services	400,000.00	26,710.50	113,928.42	0.00	28.48
05-01-6120	Accounting and audit services	40,000.00	44,000.00	63,800.00	0.00	159.50
05-01-6155	Contracted services	150,000.00	8,652.47	45,548.51	20,738.75	30.37
05-01-6180	Dues and subscriptions	38,000.00	-17,219.07	27,737.34	0.00	72.99
05-01-6220	Electricity	8,000.00	521.06	4,521.96	0.00	56.52
05-01-6240	Natural gas	2,000.00	152.98	353.44	0.00	17.67
05-01-6290	Other utilities	16,000.00	192.24	9,785.00	0.00	61.16
05-01-6310	Janitorial services	25,000.00	1,699.87	9,284.35	0.00	37.14
05-01-6320	Buildings and grounds maint	6,000.00	797.42	6,353.04	0.00	105.88
05-01-6410	Mileage	2,000.00	0.00	0.00	0.00	0.00
05-01-6420	Staff training	23,000.00	0.00	7,441.61	0.00	32.35
05-01-6440	Board expense	5,000.00	0.00	515.95	0.00	10.32
05-01-6510	Office supplies	15,000.00	1,365.71	10,779.83	0.00	71.87
05-01-6530	Small tools and equipment	1,000.00	0.00	260.40	14.50	26.04
05-01-6560	Uniforms	1,000.00	0.00	45.68	0.00	4.57
05-01-6610	Board compensation	1,000.00	0.00	150.00	0.00	15.00
05-01-6730	Communications	5,000.00	68.47	463.50	0.00	9.27
05-01-6740	Advertising	1,000.00	0.00	0.00	0.00	0.00
05-01-6760	Equipment rental	3,000.00	0.00	0.00	0.00	0.00
05-01-6770	Bank charges	125,000.00	10,898.20	69,390.34	0.00	55.51
05-01-6780	Taxes, fees, and other charges	1,000.00	0.00	108.00	0.00	10.80
05-01-6900	Miscellaneous expense	1,000.00	0.00	0.00	0.00	0.00
	<i>Materials & Services</i>	<i>869,000.00</i>	<i>77,839.85</i>	<i>370,467.37</i>	<i>20,753.25</i>	<i>42.63</i>

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
	AdminFinance	1,825,000.00	153,669.38	824,898.90	20,753.25	45.20
	Human Resources					
	<i>Personnel Services</i>					
05-02-5110	Regular employees	154,000.00	7,501.34	45,007.76	0.00	29.23
05-02-5210	Healthdental insurance	35,000.00	64.69	388.14	0.00	1.11
05-02-5230	Social security	12,000.00	570.64	3,423.83	0.00	28.53
05-02-5240	Retirement	31,000.00	1,323.93	7,943.70	0.00	25.62
05-02-5250	TrimetWBF	2,000.00	58.67	352.49	0.00	17.62
05-02-5260	Unemployment	2,000.00	0.00	0.00	0.00	0.00
05-02-5270	Workers compensation	3,000.00	0.00	2,581.43	0.00	86.05
05-02-5290	Other employee benefits	2,000.00	2,487.80	2,633.40	0.00	131.67
	<i>Personnel Services</i>	<i>241,000.00</i>	<i>12,007.07</i>	<i>62,330.75</i>	<i>0.00</i>	<i>25.86</i>
	<i>Materials & Services</i>					
05-02-6180	Dues and subscriptions	1,000.00	0.00	0.00	0.00	0.00
05-02-6230	Telephone	56,100.00	4,296.98	26,202.82	0.00	46.71
05-02-6410	Mileage	1,000.00	0.00	0.00	0.00	0.00
05-02-6420	Staff training	14,000.00	0.00	2,252.24	0.00	16.09
05-02-6510	Office supplies	1,000.00	136.05	433.58	0.00	43.36
05-02-6720	Insurance-General	173,000.00	0.00	0.00	0.00	0.00
05-02-6740	Advertising	5,000.00	0.00	1,962.77	0.00	39.26
	<i>Materials & Services</i>	<i>251,100.00</i>	<i>4,433.03</i>	<i>30,851.41</i>	<i>0.00</i>	<i>12.29</i>
	Human Resources	492,100.00	16,440.10	93,182.16	0.00	18.94
	Technical Services					
	<i>Personnel Services</i>					
05-03-5110	Regular employees	583,000.00	40,743.73	243,754.47	0.00	41.81
05-03-5130	Overtime	5,000.00	0.00	906.56	0.00	18.13
05-03-5210	Healthdental Insurance	119,000.00	7,255.77	45,592.56	0.00	38.31
05-03-5230	Social security	45,000.00	2,255.19	17,138.97	0.00	38.09
05-03-5240	Retirement	115,000.00	7,620.92	45,760.59	0.00	39.79
05-03-5250	TrimetWBF	5,000.00	313.70	1,883.80	0.00	37.68
05-03-5260	Unemployment	6,000.00	0.00	0.00	0.00	0.00
05-03-5270	Workers compensation	9,000.00	0.00	7,698.20	0.00	85.54
05-03-5290	Other employee benefits	4,000.00	0.00	0.00	0.00	0.00
	<i>Personnel Services</i>	<i>891,000.00</i>	<i>58,189.31</i>	<i>362,735.15</i>	<i>0.00</i>	<i>40.71</i>
	<i>Materials & Services</i>					
05-03-6155	Contracted services	212,000.00	1,936.50	68,092.77	109,476.81	32.12
05-03-6180	Dues and subscriptions	3,000.00	0.00	2,540.00	0.00	84.67
05-03-6350	Computer maintenance	291,300.00	23,174.20	152,443.10	5,685.00	52.33
05-03-6390	Other repairs and maintenance	4,000.00	0.00	245.00	0.00	6.13
05-03-6410	Mileage	1,000.00	239.80	311.72	0.00	31.17
05-03-6420	Staff training	16,000.00	0.00	4,470.95	0.00	27.94
05-03-6430	Certifications	500.00	0.00	0.00	0.00	0.00
05-03-6510	Office supplies	13,000.00	934.34	2,384.53	0.00	18.34
05-03-6540	Safety supplies	1,000.00	263.98	1,270.68	0.00	127.07
05-03-6560	Uniforms	500.00	0.00	0.00	0.00	0.00
05-03-6730	Communications	117,100.00	0.00	3,038.56	26,025.00	2.59
	<i>Materials & Services</i>	<i>659,400.00</i>	<i>26,548.82</i>	<i>234,797.31</i>	<i>141,186.81</i>	<i>35.61</i>
	Technical Services	1,550,400.00	84,738.13	597,532.46	141,186.81	38.54
	Vehicle Services					
	<i>Materials & Services</i>					
05-04-6330	Vehicleequipment maintenance	61,500.00	463.66	18,804.99	0.00	30.58
05-04-6520	Fuels and oils	70,800.00	1,268.95	17,855.10	0.00	25.22
	<i>Materials & Services</i>	<i>132,300.00</i>	<i>1,732.61</i>	<i>36,660.09</i>	<i>0.00</i>	<i>27.71</i>
	Vehicle Services	132,300.00	1,732.61	36,660.09	0.00	27.71
	Special Payments					

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
05-25-6990	<i>Special Payments</i>					
	Special Payments - PERS	0.00	300,000.00	300,000.00	0.00	0.00
	<i>Special Payments</i>	0.00	300,000.00	300,000.00	0.00	0.00
	Special Payments	0.00	300,000.00	300,000.00	0.00	0.00
	Transfers & Contingencies					
	<i>Transfers & Contingencies</i>					
05-29-9000	Contingency	503,700.00	0.00	0.00	0.00	0.00
	<i>Transfers & Contingencies</i>	503,700.00	0.00	0.00	0.00	0.00
	Transfers & Contingencies	503,700.00	0.00	0.00	0.00	0.00
05	Administrative Services	-4,501,000.00	-555,408.38	-1,851,070.33	-161,940.06	41.13
10	Drinking Water NonDivisional					
	<i>Beginning Fund Balance</i>					
10-00-3500	Fund balance	-1,801,651.00	0.00	-2,430,386.60	0.00	134.90
	<i>Beginning Fund Balance</i>	-1,801,651.00	0.00	-2,430,386.60	0.00	134.90
	<i>Revenue</i>					
10-00-4210	Water Sales - CRW	32,000.00	0.00	16,836.12	0.00	52.61
10-00-4211	Water sales	4,265,000.00	300,905.79	2,123,748.01	0.00	49.79
10-00-4215	Penalties and late charges	25,000.00	1,662.17	10,824.05	0.00	43.30
10-00-4220	System development charges	100,000.00	32,400.00	196,370.00	0.00	196.37
10-00-4230	Contract services	53,000.00	0.00	20,000.00	0.00	37.74
10-00-4240	Service installations	15,000.00	1,865.26	16,755.03	0.00	111.70
10-00-4280	Rents & leases	160,000.00	6,797.87	120,203.42	0.00	75.13
10-00-4290	Other charges for services	20,000.00	1,020.00	5,210.00	0.00	26.05
10-00-4610	Investment revenue	500.00	1,276.55	7,758.69	0.00	1,551.74
10-00-4630	Miscellaneous revenues	15,000.00	3,152.36	36,448.59	0.00	242.99
	<i>Revenue</i>	4,685,500.00	349,080.00	2,554,153.91	0.00	54.51
	NonDivisional	6,487,151.00	349,080.00	4,984,540.51	0.00	76.84
	Drinking Water Personnel Services					
10-20-5110	Regular employees	599,000.00	51,393.11	283,942.94	0.00	47.40
10-20-5120	Temporaryseasonal employees	30,000.00	0.00	0.00	0.00	0.00
10-20-5130	Overtime	42,000.00	1,880.28	6,923.25	0.00	16.48
10-20-5210	Healthdental insurance	147,000.00	10,324.31	52,620.97	0.00	35.80
10-20-5230	Social Security	52,000.00	3,989.47	30,067.76	0.00	57.82
10-20-5240	Retirement	144,000.00	10,420.68	60,506.29	0.00	42.02
10-20-5250	TrimetWBF	6,000.00	411.63	2,243.71	0.00	37.40
10-20-5260	Unemployment	8,000.00	0.00	0.00	0.00	0.00
10-20-5270	Workers compensation	11,000.00	0.00	9,403.78	0.00	85.49
10-20-5290	Other employee benefits	5,000.00	0.00	160.70	0.00	3.21
	<i>Personnel Services</i>	1,044,000.00	78,419.48	445,869.40	0.00	42.71
	<i>Materials & Services</i>					
10-20-6110	Legal services	0.00	0.00	0.00	0.00	0.00
10-20-6155	Contracted Services	0.00	0.00	0.00	0.00	0.00
10-20-6180	Dues & subscriptions	0.00	0.00	0.00	0.00	0.00
10-20-6220	Electricity	40,000.00	499.33	13,111.41	0.00	32.78
10-20-6230	Telephone	4,200.00	210.52	210.52	0.00	5.01

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
10-20-6240	Natural gas	2,000.00	0.00	1,440.50	0.00	72.03
10-20-6290	Other utilities	2,000.00	176.74	874.63	0.00	43.73
10-20-6310	Janitorial services	1,000.00	0.00	88.97	0.00	8.90
10-20-6320	Buildings & grounds	10,000.00	1,333.00	4,639.66	0.00	46.40
10-20-6340	Distribution system maint	220,000.00	5,596.35	98,194.95	18,858.26	44.63
10-20-6350	Computer maintenance	0.00	0.00	0.00	0.00	0.00
10-20-6390	Other repairs & maintenance	50,000.00	0.00	26,594.33	9,240.75	53.19
10-20-6410	Mileage	1,000.00	0.00	111.94	0.00	11.19
10-20-6420	Staff training	8,000.00	0.00	3,728.76	0.00	46.61
10-20-6430	Certifications	1,000.00	335.00	615.00	0.00	61.50
10-20-6510	Office supplies	0.00	0.00	370.51	0.00	0.00
10-20-6520	Fuel & oils	0.00	0.00	0.00	0.00	0.00
10-20-6530	Small tools & equipment	22,000.00	0.00	504.60	0.00	2.29
10-20-6540	Safety supplies	16,000.00	311.72	4,969.06	0.00	31.06
10-20-6550	Operational Supplies	2,000.00	0.00	673.71	0.00	33.69
10-20-6560	Uniforms	0.00	395.93	1,121.44	0.00	0.00
10-20-6710	Purchased water	1,150,000.00	76,149.84	510,071.33	0.00	44.35
10-20-6715	Water quality program	0.00	4,610.00	7,944.00	0.00	0.00
10-20-6740	Advertising	0.00	0.00	0.00	0.00	0.00
10-20-6760	Equipment Rental	5,000.00	0.00	0.00	0.00	0.00
10-20-6770	Bank charges	0.00	0.00	0.00	0.00	0.00
10-20-6780	Taxes & fees	20,000.00	0.00	14,696.16	0.00	73.48
10-20-6900	Miscellaneous expense <i>Materials & Services</i>	1,000.00 1,555,200.00	0.00 89,618.43	0.00 689,961.48	0.00 28,099.01	0.00 44.36
	Drinking Water	2,599,200.00	168,037.91	1,135,830.88	28,099.01	43.70
	Debt Service					
	<i>Materials & Services</i>					
10-24-6815	Zions Bank loan-principal	175,000.00	0.00	0.00	0.00	0.00
10-24-6825	Zions Bank loan-interest <i>Materials & Services</i>	34,522.00 209,522.00	0.00 0.00	16,767.66 16,767.66	0.00 0.00	48.57 8.00
	Debt Service	209,522.00	0.00	16,767.66	0.00	8.00
	Transfers & Contingencies					
	<i>Transfers & Contingencies</i>					
10-29-8105	Transfer out - Fund 05	1,444,000.00	120,333.33	721,999.98	0.00	50.00
10-29-8171	Transfers out to Fund 71	1,675,000.00	0.00	1,475,000.00	0.00	88.06
10-29-9000	Contingency <i>Transfers & Contingencies</i>	559,429.00 3,678,429.00	0.00 120,333.33	0.00 2,196,999.98	0.00 0.00	0.00 59.73
	Transfers & Contingencies	3,678,429.00	120,333.33	2,196,999.98	0.00	59.73
10	Drinking Water	0.00	60,708.76	1,634,941.99	-28,099.01	0.00
20	Wastewater Reclam. NonDivisional					
	<i>Beginning Fund Balance</i>					
20-00-3500	Fund balance <i>Beginning Fund Balance</i>	-789,178.00 -789,178.00	0.00 0.00	-1,315,554.60 -1,315,554.60	0.00 0.00	166.70 166.70
	<i>Revenue</i>					
20-00-4212	Wastewater charges	8,200,000.00	740,725.29	4,095,581.81	0.00	49.95
20-00-4215	Penalties & late charges	25,000.00	805.32	5,259.54	0.00	21.04
20-00-4220	System development charges	125,000.00	30,990.00	339,177.60	0.00	271.34
20-00-4240	Service installations	40,000.00	0.00	12,615.75	0.00	31.54
20-00-4290	Other charges for	15,000.00	2,420.00	5,060.00	0.00	33.73

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
20-00-4610	services Investment revenue	0.00	556.82	4,662.12	0.00	0.00
20-00-4630	Miscellaneous revenues	15,000.00	974.90	5,665.41	0.00	37.77
	<i>Revenue</i>	<i>8,420,000.00</i>	<i>776,472.33</i>	<i>4,468,022.23</i>	<i>0.00</i>	<i>53.06</i>
	NonDivisional	9,209,178.00	776,472.33	5,783,576.83	0.00	62.80
	Wastewater-Plant					
	<i>Personnel Services</i>					
20-21-5110	Regular employees	622,000.00	53,486.32	329,664.09	0.00	53.00
20-21-5120	Temporaryseasonal employees	35,000.00	0.00	0.00	0.00	0.00
20-21-5130	Overtime	49,000.00	7,165.13	32,524.28	0.00	66.38
20-21-5210	Healthdental insurance	155,000.00	11,876.95	72,103.82	0.00	46.52
20-21-5230	Social security	54,000.00	4,532.58	27,068.73	0.00	50.13
20-21-5240	Retirement	134,000.00	11,128.13	67,133.90	0.00	50.10
20-21-5250	TrimetWBF	6,000.00	467.05	2,795.75	0.00	46.60
20-21-5260	Unemployment	9,000.00	0.00	0.00	0.00	0.00
20-21-5270	Workers compensation	12,000.00	0.00	10,233.53	0.00	85.28
20-21-5290	Other employee benefits	4,000.00	39.55	39.55	0.00	0.99
	<i>Personnel Services</i>	<i>1,080,000.00</i>	<i>88,695.71</i>	<i>541,563.65</i>	<i>0.00</i>	<i>50.14</i>
	<i>Materials & Services</i>					
20-21-6155	Contracted services	5,000.00	3,120.00	31,615.38	0.00	632.31
20-21-6180	Dues & subscriptions	15,000.00	0.00	285.00	0.00	1.90
20-21-6220	Electricity	250,000.00	20,260.13	98,790.45	0.00	39.52
20-21-6230	Telephone	2,400.00	55.50	55.50	0.00	2.31
20-21-6240	Natural gas	1,000.00	27.38	120.86	0.00	12.09
20-21-6250	Solid waste disposal	75,000.00	10,449.42	41,585.35	14,290.30	55.45
20-21-6290	Other utilities	1,000.00	136.59	546.36	0.00	54.64
20-21-6310	Janitorial services	10,000.00	0.00	42.29	0.00	0.42
20-21-6320	Buildings & grounds	20,000.00	3,369.33	20,032.22	2,778.03	100.16
20-21-6342	WRF system maintenance	240,000.00	730.00	96,901.29	53,951.00	40.38
20-21-6410	Mileage	2,000.00	0.00	0.00	0.00	0.00
20-21-6420	Staff training	7,000.00	0.00	3,889.64	0.00	55.57
20-21-6430	Certifications	3,000.00	0.00	50.00	0.00	1.67
20-21-6510	Office supplies	3,000.00	0.00	395.48	0.00	13.18
20-21-6520	Fuel & oils	0.00	0.00	0.00	0.00	0.00
20-21-6525	Chemicals	25,000.00	4,258.10	8,516.20	8,741.90	34.06
20-21-6530	Small tools & equipment	20,200.00	0.00	2,120.92	1,712.62	10.50
20-21-6540	Safety supplies	20,100.00	2,024.53	3,672.60	4,312.88	18.27
20-21-6550	Operational supplies	20,000.00	1,858.96	6,837.66	677.72	34.19
20-21-6560	Uniforms	15,000.00	1,737.98	9,278.76	1.00	61.86
20-21-6590	Other supplies	20,000.00	164.59	4,098.82	260.00	20.49
20-21-6730	Communications	0.00	0.00	0.00	0.00	0.00
20-21-6750	Other purchased services	15,000.00	1,429.72	7,204.23	0.00	48.03
20-21-6770	Bank charges	0.00	0.00	0.00	0.00	0.00
20-21-6780	Taxes & fees	71,000.00	0.00	30,512.95	0.00	42.98
20-21-6900	Miscellaneous expense	1,000.00	0.00	0.00	0.00	0.00
	<i>Materials & Services</i>	<i>841,700.00</i>	<i>49,622.23</i>	<i>366,551.96</i>	<i>86,725.45</i>	<i>43.55</i>
	Wastewater-Plant	1,921,700.00	138,317.94	908,115.61	86,725.45	47.26
	Wastewater-Collections					
	<i>Personnel Services</i>					
20-22-5110	Regular employees	427,000.00	41,202.80	212,664.52	0.00	49.80
20-22-5120	Temporaryseasonal employees	35,000.00	0.00	0.00	0.00	0.00
20-22-5130	Overtime	49,000.00	784.72	4,250.61	0.00	8.67
20-22-5210	Healthdental insurance	110,000.00	7,552.36	41,451.10	0.00	37.68
20-22-5230	Social security	40,000.00	3,204.46	16,569.22	0.00	41.42
20-22-5240	Retirement	112,000.00	7,334.07	40,609.75	0.00	36.26
20-22-5250	TrimetWBF	5,000.00	331.05	1,712.84	0.00	34.26
20-22-5260	Unemployment	6,000.00	0.00	0.00	0.00	0.00
20-22-5270	Workers compensation	8,000.00	0.00	6,822.35	0.00	85.28
20-22-5290	Other employee benefits	4,000.00	0.00	0.00	0.00	0.00

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
	<i>Personnel Services</i>	796,000.00	60,409.46	324,080.39	0.00	40.71
	<i>Materials & Services</i>					
20-22-6180	Dues & subscriptions	0.00	0.00	0.00	0.00	0.00
20-22-6230	Telephone	10,000.00	55.50	55.50	0.00	0.56
20-22-6290	Other utilities	0.00	0.00	0.00	0.00	0.00
20-22-6310	Janitorial services	2,000.00	0.00	0.00	0.00	0.00
20-22-6320	Buildings & grounds	3,000.00	0.00	506.96	0.00	16.90
20-22-6342	Collection system maint.	50,000.00	0.00	12,417.00	7,150.00	24.83
20-22-6390	Other repairs & maintenance	6,000.00	0.00	0.00	0.00	0.00
20-22-6410	Mileage	2,000.00	0.00	0.00	0.00	0.00
20-22-6420	Staff training	4,000.00	0.00	153.00	0.00	3.83
20-22-6430	Certifications	1,000.00	160.00	160.00	0.00	16.00
20-22-6510	Office supplies	6,000.00	0.00	257.56	0.00	4.29
20-22-6530	Small tools & equipment	28,000.00	0.00	3,485.00	1,081.45	12.45
20-22-6540	Safety supplies	4,000.00	294.41	1,264.32	0.00	31.61
20-22-6550	Operational supplies	6,000.00	75.29	719.98	0.00	12.00
20-22-6560	Uniforms	8,000.00	1,100.76	4,039.89	0.00	50.50
20-22-6590	Other supplies	0.00	90.00	90.00	0.00	0.00
20-22-6750	Other purchased services	4,000.00	330.81	1,630.65	0.00	40.77
20-22-6770	Bank charges	0.00	0.00	0.00	0.00	0.00
20-22-6780	Taxes & fees	6,000.00	0.00	1,827.93	0.00	30.47
20-22-6900	Miscellaneous expense	1,000.00	0.00	0.00	0.00	0.00
	<i>Materials & Services</i>	141,000.00	2,106.77	26,607.79	8,231.45	18.87
	Wastewater-Collections	937,000.00	62,516.23	350,688.18	8,231.45	37.43
	Transfers & Contingencies					
	<i>Transfers & Contingencies</i>					
20-29-8105	Transfers out to Fund 05	2,028,000.00	169,000.00	1,014,000.00	0.00	50.00
20-29-8140	Transfers out to Fund 40	1,350,500.00	645,047.40	667,447.40	0.00	49.42
20-29-8150	Transfers out to Fund 50	1,100,000.00	0.00	189,662.50	0.00	17.24
20-29-8172	Transfers out to Fund 72	1,300,000.00	108,333.33	649,999.99	0.00	50.00
20-29-9000	Contingency	571,978.00	0.00	0.00	0.00	0.00
	<i>Transfers & Contingencies</i>	6,350,478.00	922,380.73	2,521,109.89	0.00	39.70
	Transfers & Contingencies	6,350,478.00	922,380.73	2,521,109.89	0.00	39.70
20	Wastewater Reclam.	0.00	-346,742.57	2,003,663.15	-94,956.90	0.00
30	Watershed Protection NonDivisional					
	<i>Beginning Fund Balance</i>					
30-00-3500	Fund balance	-307,986.00	0.00	-465,068.02	0.00	151.00
	<i>Beginning Fund Balance</i>	-307,986.00	0.00	-465,068.02	0.00	151.00
	<i>Revenue</i>					
30-00-4213	Watershed protection fees	1,530,000.00	130,592.34	774,138.33	0.00	50.60
30-00-4215	Penalties & late charges	2,000.00	242.60	1,397.17	0.00	69.86
30-00-4240	Service installations	20,000.00	0.00	24,684.05	0.00	123.42
30-00-4290	Other charges for services	5,000.00	4,080.00	6,630.00	0.00	132.60
30-00-4610	Investment revenue	0.00	104.97	254.15	0.00	0.00
30-00-4630	Miscellaneous revenues	2,000.00	176.74	906.86	0.00	45.34
	<i>Revenue</i>	1,559,000.00	135,196.65	808,010.56	0.00	51.83
	NonDivisional	1,866,986.00	135,196.65	1,273,078.58	0.00	68.19
	Watershed Protection Personnel Services					

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
30-23-5110	Regular employees	108,000.00	1,835.50	22,511.49	0.00	20.84
30-23-5210	Healthdental insurance	30,000.00	266.63	2,711.88	0.00	9.04
30-23-5230	Social Security	9,000.00	135.18	1,743.16	0.00	19.37
30-23-5240	Retirement	26,000.00	323.97	2,649.59	0.00	10.19
30-23-5250	TrimetWBF	1,000.00	14.03	177.24	0.00	17.72
30-23-5260	Unemployment	1,000.00	0.00	0.00	0.00	0.00
30-23-5270	Workers compensation	2,000.00	0.00	1,659.49	0.00	82.97
30-23-5290	Other employee benefits	1,000.00	0.00	0.00	0.00	0.00
	<i>Personnel Services</i>	<i>178,000.00</i>	<i>2,575.31</i>	<i>31,452.85</i>	<i>0.00</i>	<i>17.67</i>
	<i>Materials & Services</i>					
30-23-6155	Contracted Services	40,000.00	799.00	7,250.00	0.00	18.13
30-23-6180	Dues & subscriptions	0.00	0.00	0.00	0.00	0.00
30-23-6320	Buildings & grounds	0.00	0.00	0.00	0.00	0.00
30-23-6340	System maintenance	0.00	0.00	0.00	0.00	0.00
30-23-6390	Other repairs & maintenance	0.00	0.00	0.00	0.00	0.00
30-23-6410	Mileage	0.00	0.00	0.00	0.00	0.00
30-23-6420	Staff training	1,000.00	0.00	2,367.05	0.00	236.71
30-23-6510	Office supplies	0.00	0.00	104.74	0.00	0.00
30-23-6540	Safety supplies	0.00	81.64	549.82	0.00	0.00
30-23-6560	Uniforms	500.00	0.00	1,081.83	0.00	216.37
30-23-6730	Communications	42,000.00	0.00	4,145.40	0.00	9.87
30-23-6770	Bank charges	0.00	0.00	0.00	0.00	0.00
30-23-6780	Taxes & fees	0.00	0.00	0.00	0.00	0.00
	<i>Materials & Services</i>	<i>83,500.00</i>	<i>880.64</i>	<i>15,498.84</i>	<i>0.00</i>	<i>18.56</i>
	Watershed Protection	261,500.00	3,455.95	46,951.69	0.00	17.95
	Debt Service					
	<i>Materials & Services</i>					
30-24-6814	Principal Payment-KS Statebank	52,308.00	0.00	52,308.38	0.00	100.00
30-24-6824	Interest Paid-KS Statebank	10,249.00	0.00	10,249.23	0.00	100.00
	<i>Materials & Services</i>	<i>62,557.00</i>	<i>0.00</i>	<i>62,557.61</i>	<i>0.00</i>	<i>100.00</i>
	Debt Service	62,557.00	0.00	62,557.61	0.00	100.00
	Transfers & Contingencies					
	<i>Transfers & Contingencies</i>					
30-29-8105	Transfers out to Fund 05	1,029,000.00	85,750.00	514,500.00	0.00	50.00
30-29-8173	Transfers out to Fund 73	430,000.00	35,833.33	214,999.99	0.00	50.00
30-29-9000	Contingency	83,928.00	0.00	0.00	0.00	0.00
	<i>Transfers & Contingencies</i>	<i>1,542,928.00</i>	<i>121,583.33</i>	<i>729,499.99</i>	<i>0.00</i>	<i>47.28</i>
	Transfers & Contingencies	1,542,928.00	121,583.33	729,499.99	0.00	47.28
30	Watershed Protection	1.00	10,157.37	434,069.29	0.00	43,406,929.00
71	Drinking Water Capital NonDivisional					
	<i>Beginning Fund Balance</i>					
71-00-3500	Fund balance	-2,703,013.00	0.00	-3,236,047.66	0.00	119.72
	<i>Beginning Fund Balance</i>	<i>-2,703,013.00</i>	<i>0.00</i>	<i>-3,236,047.66</i>	<i>0.00</i>	<i>119.72</i>
	<i>Revenue</i>					
71-00-4610	Investment revenue	50,000.00	8,069.84	54,801.63	0.00	109.60
	<i>Revenue</i>	<i>50,000.00</i>	<i>8,069.84</i>	<i>54,801.63</i>	<i>0.00</i>	<i>109.60</i>
	NonDivisional	2,753,013.00	8,069.84	3,290,849.29	0.00	119.54

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
	Drinking Water					
	<i>Capital Outlay</i>					
71-20-7200	Infrastructure	0.00	0.00	259,066.50	0.00	0.00
71-20-7300	Buildings & improvements	330,000.00	0.00	6,958.30	0.00	2.11
71-20-7600	Capital Improvement Projects	4,098,013.00	23,175.00	291,025.85	43,025.00	7.10
	<i>Capital Outlay</i>	<i>4,428,013.00</i>	<i>23,175.00</i>	<i>557,050.65</i>	<i>43,025.00</i>	<i>12.58</i>
	Drinking Water	4,428,013.00	23,175.00	557,050.65	43,025.00	12.58
71	Drinking Water Capital	-1,675,000.00	-15,105.16	2,733,798.64	-43,025.00	-163.21
72	Wastewater Reclamation Capital NonDivisional					
	<i>Beginning Fund Balance</i>					
72-00-3500	Fund balance	-3,754,027.00	0.00	-4,220,098.11	0.00	112.42
	<i>Beginning Fund Balance</i>	<i>-3,754,027.00</i>	<i>0.00</i>	<i>-4,220,098.11</i>	<i>0.00</i>	<i>112.42</i>
	<i>Revenue</i>					
72-00-4610	Investment revenue	75,000.00	8,682.26	55,317.41	0.00	73.76
	<i>Revenue</i>	<i>75,000.00</i>	<i>8,682.26</i>	<i>55,317.41</i>	<i>0.00</i>	<i>73.76</i>
	NonDivisional	3,829,027.00	8,682.26	4,275,415.52	0.00	111.66
	Wastewater-Plant					
	<i>Capital Outlay</i>					
72-21-7300	Buildings & improvements	75,000.00	0.00	27,906.33	0.00	37.21
72-21-7520	Equipment	60,000.00	0.00	0.00	20,539.40	0.00
72-21-7600	Capital Improvement Projects	4,784,027.00	29,773.28	395,485.97	38,634.86	8.27
	<i>Capital Outlay</i>	<i>4,919,027.00</i>	<i>29,773.28</i>	<i>423,392.30</i>	<i>59,174.26</i>	<i>8.61</i>
	Wastewater-Plant	4,919,027.00	29,773.28	423,392.30	59,174.26	8.61
	Wastewater-Collections					
	<i>Capital Outlay</i>					
72-22-7300	Buildings and improvements	210,000.00	0.00	2,971.86	0.00	1.42
72-22-7600	Capital Improvement Projects	0.00	0.00	0.00	0.00	0.00
	<i>Capital Outlay</i>	<i>210,000.00</i>	<i>0.00</i>	<i>2,971.86</i>	<i>0.00</i>	<i>1.42</i>
	Wastewater-Collections	210,000.00	0.00	2,971.86	0.00	1.42
72	Wastewater Reclamation Capital	-1,300,000.00	-21,091.02	3,849,051.36	-59,174.26	-296.08
73	Watershed Protection Capital NonDivisional					
	<i>Beginning Fund Balance</i>					
73-00-3500	Fund balance	-1,681,715.00	0.00	-1,816,319.98	0.00	108.00
	<i>Beginning Fund Balance</i>	<i>-1,681,715.00</i>	<i>0.00</i>	<i>-1,816,319.98</i>	<i>0.00</i>	<i>108.00</i>
	<i>Revenue</i>					
73-00-4610	Investment revenue	40,000.00	2,939.17	22,961.39	0.00	57.40
	<i>Revenue</i>	<i>40,000.00</i>	<i>2,939.17</i>	<i>22,961.39</i>	<i>0.00</i>	<i>57.40</i>
	NonDivisional	1,721,715.00	2,939.17	1,839,281.37	0.00	106.83
	Watershed Protection					

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
73-23-7300	<i>Capital Outlay</i> Buildings & improvements	135,000.00	0.00	4,630.70	0.00	3.43
73-23-7540	Vehicles	30,000.00	0.00	0.00	0.00	0.00
73-23-7600	Capital Improvement Projects	1,986,715.00	0.00	508,567.95	0.00	25.60
	<i>Capital Outlay</i>	<i>2,151,715.00</i>	<i>0.00</i>	<i>513,198.65</i>	<i>0.00</i>	<i>23.85</i>
	Watershed Protection	2,151,715.00	0.00	513,198.65	0.00	23.85
73	Watershed Protection Capital	-430,000.00	2,939.17	1,326,082.72	0.00	-308.39

General Ledger
Account Roll up



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Period 06 - 06
Fiscal Year 2020

Sort Level	Description	Budget	Period Amt	End Bal	% ExpendCollect
Revenue	Revenue				
4210	Water Sales - CRW	32,000.00	0.00	16,836.12	52.61
4211	Water sales	4,265,000.00	300,905.79	2,123,748.01	49.79
4212	Wastewater Charges	8,200,000.00	740,725.29	4,095,581.81	49.95
4213	Watershed protection fees	1,530,000.00	130,592.34	774,138.33	50.60
4215	Penalties & late charges	52,000.00	2,710.09	17,480.76	33.62
4220	System development charges	225,000.00	63,390.00	535,547.60	238.02
4230	Contract services	53,000.00	0.00	20,000.00	37.74
4240	Service installations	75,000.00	1,865.26	54,054.83	72.07
4280	Rents & leases	160,000.00	6,797.87	120,203.42	75.13
4290	Other charges for services	40,000.00	7,520.00	16,900.00	42.25
4610	Investment revenue	190,300.00	25,825.41	167,043.03	87.78
4630	Miscellaneous revenues	34,500.00	4,304.00	43,052.30	124.79
4701	Interest Subsidy	115,000.00	0.00	117,300.48	102.00
4910	Transfer in from Fund 10	3,119,000.00	120,333.33	2,196,999.98	70.44
4920	Transfer in from Fund 20	5,778,500.00	922,380.73	2,521,109.89	43.63
4930	Transfer in from Fund 30	1,459,000.00	121,583.33	729,499.99	50.00
Revenue	Revenue	25,328,300.00	2,448,933.44	13,549,496.55	53.50
Expense	Expense				
5110	Regular employees	3,131,000.00	246,401.08	1,444,910.30	46.15
5120	Temporary/Seasonal employees	110,000.00	0.00	0.00	0.00
5130	Overtime	150,000.00	10,353.19	47,702.20	31.80
5210	Employee Ins	690,000.00	44,841.68	260,122.25	37.70
5230	Social Security	262,000.00	17,569.61	116,596.47	44.50
5240	Retirement	696,000.00	52,448.28	292,658.80	42.05
5250	Trimet	31,000.00	1,984.68	11,543.07	37.24
5260	Unemployment	38,000.00	0.00	0.00	0.00
5270	Workers compensation	54,000.00	0.00	46,096.98	85.36
5290	Other employee benefits	24,000.00	2,527.35	2,833.65	11.81
6110	Legal services	400,000.00	26,710.50	113,928.42	28.48
6120	Accounting & audit services	40,000.00	44,000.00	63,800.00	159.50
6155	Contracted Services	407,000.00	14,507.97	152,506.66	37.47
6180	Dues & subscriptions	57,000.00	-17,219.07	30,562.34	53.62
6220	Electricity	298,000.00	21,280.52	116,423.82	39.07
6230	Telephone	72,700.00	4,618.50	26,524.34	36.48
6240	Natural gas	5,000.00	180.36	1,914.80	38.30
6250	Solid waste disposal	75,000.00	10,449.42	41,585.35	55.45
6290	Other utilities	19,000.00	505.57	11,205.99	58.98
6310	Janitorial services	38,000.00	1,699.87	9,415.61	24.78
6320	Buildings & grounds	39,000.00	5,499.75	31,531.88	80.85
6330	Vehicle & equipment maint.	61,500.00	463.66	18,804.99	30.58
6340	Distribution system maint	220,000.00	5,596.35	98,194.95	44.63
6342	Collection system maint.	290,000.00	730.00	109,318.29	37.70
6350	Computer maintenance	291,300.00	23,174.20	152,443.10	52.33
6390	Other repairs & maintenance	60,000.00	0.00	26,839.33	44.73
6410	Mileage	9,000.00	239.80	423.66	4.71
6420	Staff training	73,000.00	0.00	24,303.25	33.29
6430	Certifications	5,500.00	495.00	825.00	15.00
6440	Board travel & training	5,000.00	0.00	515.95	10.32
6510	Office supplies	38,000.00	2,436.10	14,726.23	38.75
6520	Fuel & oils	70,800.00	1,268.95	17,855.10	25.22
6525	Chemicals	25,000.00	4,258.10	8,516.20	34.06

Sort Level	Description	Budget	Period Amt	End Bal	% ExpendCollect
6530	Small tools & equipment	71,200.00	0.00	6,370.92	8.95
6540	Safety supplies	41,100.00	2,976.28	11,726.48	28.53
6550	Operational Supplies	28,000.00	1,934.25	8,231.35	29.40
6560	Uniforms	25,000.00	3,234.67	15,567.60	62.27
6590	Other supplies	20,000.00	254.59	4,188.82	20.94
6610	Board compensation	1,000.00	0.00	150.00	15.00
6710	Purchased water	1,150,000.00	76,149.84	510,071.33	44.35
6715	Water quality program	0.00	4,610.00	7,944.00	0.00
6720	Insurance	173,000.00	0.00	0.00	0.00
6730	Communications	164,100.00	68.47	7,647.46	4.66
6740	Advertising	6,000.00	0.00	1,962.77	32.71
6750	Other purchased services	19,000.00	1,760.53	8,834.88	46.50
6760	Equipment Rental	8,000.00	0.00	0.00	0.00
6770	Bank charges	125,000.00	10,898.20	69,390.34	55.51
6780	Taxes & fees	98,000.00	0.00	47,145.04	48.11
6810	2010 SRF Loan Principal	893,387.00	0.00	444,576.00	49.76
6811	2010 IFA Loan Principal	368,036.00	368,036.00	368,036.00	100.00
6812	2010 GO Bond Principal	1,120,000.00	0.00	0.00	0.00
6813	JPM Bank Loan Principal	190,000.00	0.00	0.00	0.00
6814	Principal Payment-KS Statebank	52,308.00	0.00	52,308.38	100.00
6815	Zions Bank loan-principal	175,000.00	0.00	0.00	0.00
6820	2010 SRF Loan Interest	349,630.00	0.00	142,422.00	40.74
6821	2010 GO Bond Interest	44,800.00	0.00	22,400.00	50.00
6822	2010 IFA Loan Interest	277,012.00	277,011.40	277,011.40	100.00
6823	JPM Bank Loan Interest	379,326.00	0.00	189,662.50	50.00
6824	Interest Paid-KS Statebank	10,249.00	0.00	10,249.23	100.00
6825	Zions Bank loan-interest	34,522.00	0.00	16,767.66	48.57
6900	Miscellaneous expense	4,000.00	0.00	0.00	0.00
6910	Cash overshoot	0.00	0.00	-0.51	0.00
6990	Special Payments	0.00	300,000.00	300,000.00	0.00
7200	Infrastructure	0.00	0.00	259,066.50	0.00
7300	Buildings & improvements	750,000.00	0.00	42,467.19	5.66
7520	Equipment	60,000.00	0.00	0.00	0.00
7540	Vehicles	30,000.00	0.00	0.00	0.00
7600	Capital Improvement Projects	10,868,755.00	52,948.28	1,195,079.77	11.00
8105	Transfers out to Fund 05	4,501,000.00	375,083.33	2,250,499.98	50.00
8140	Transfers out - Fund 40	1,350,500.00	645,047.40	667,447.40	49.42
8150	Transfers out - Fund 50	1,100,000.00	0.00	189,662.50	17.24
8171	Transfers out - Fund 71	1,675,000.00	0.00	1,475,000.00	88.06
8172	Transfers out - Fund 72	1,300,000.00	108,333.33	649,999.99	50.00
8173	Transfers out - Fund 73	430,000.00	35,833.33	214,999.99	50.00
9000	Contingency	1,719,035.00	0.00	0.00	0.00
Expense	Expense	37,397,760.00	2,791,201.32	12,761,515.95	34.12
Grand Total		-12,069,460.00	-342,267.88	787,980.60	-0.0653
Fund Balance Total		0.00	0.00	0.00	0
Revenue Total		25,328,300.00	2,448,933.44	13,549,496.55	0.535
Expense Total		37,397,760.00	2,791,201.32	12,761,515.95	0.3412



OAK LODGE WATER SERVICES
Minutes
Board of Directors – Regular Meeting 6:00 p.m.
December 17, 2019

Board of Directors - Members Present:

Susan Keil,	President/Chair
Kevin Williams,	Secretary/Vice President
Paul Gornick,	Director
Mark Knudson,	Director
Ginny Van Loo,	Director,

Board of Directors - Members Absent:

None,

Oak Lodge Water Services Staff Present:

Sarah Jo Chaplen,	General Manager
Aleah Binkowski-Burk,	Human Resources and Payroll Manager
Jason Rice,	District Engineer
David Mendenhall,	Plant Superintendent
Kelly Stacey,	Finance Director
Todd Knapp,	Field Operations Superintendent,

Visitors and Consultants Present:

Dave Phelps	Budget Committee
Brad Lyon	OLWSD Staff
Greg Wenneson	Oak Lodge CERT
Jackie Brown	Oak Lodge CERT
Gary Barth,	Sunrise Water Authority liaison
John Gray	Local Resident
Jane Civiletti	Local Resident
Rob Moody	Plan B Consultancy.

Regular Board of Directors Meeting

1. Call to Order and Flag Salute

President Susan Keil called the meeting to order at 6:00 p.m. and led the pledge of allegiance.

2. Call for Public Comment

President Susan Keil requested public comment. General Manager Sarah Jo Chaplen shared holiday greetings from Eric Hofeld, former Sunrise Board Member, and Lynn Fisher, former OLWS Board Member.

3. Consent Agenda

- November 2019 Financial Reports
- November 19, 2019 Board Meeting Minutes

President Susan Keil requested a motion to adopt the consent agenda. The Board added Rob Moody from Plan B Consultancy to the November OLWS minutes. On page 8 of 9 the Board corrected the “Healthy” Watersheds Committee as opposed to “Heathy”.

Director Gornick moved to adopt and approve the consent agenda as amended. Vice President Williams seconded the motion.

Ayes: 5

Nays: None

Motion carried: 5-0

4. Clackamas River Water Providers Annual Report

General Manager Sarah Jo Chaplen introduced Kim Swan, Water Resource Manager, to present the Clackamas River Water Providers’ (CRWP) Annual Report. She gave an overview, stating the groups of water providers working to treat and distribute from the Clackamas River created the CRWP in 2007 under a Chapter 190 agreement. Currently they represent eight utilities and over 300,000 people in Clackamas and Washington Counties receiving drinking water from the Clackamas River. She presented her power point (see Board Packet) and their Annual Report. She highlighted the Clackamas River Watershed is large and multiuse. She reviewed the four goals for the CRWP, which include: fostering closer relationships within the utilities; collectively fund and coordinate certain required and needed protection, conservation and outreach efforts; taking advantage of economies of scale and sharing costs; and speaking with one voice regarding water resource issues. They have an IGA, Bylaws, and a Board made up of the Water Managers of the utilities they represent. CRWP meets twice per month and has a five-year work plan which informs their annual budget. They implement two core programs: the source water protection program and the public outreach and education program. Her presentation included highlights of the two programs. She referred people to the Annual Report for more details about their work.

Kim pointed out there are just two staff working for CRWP, herself and Christine Hollenbeck, who is the Public Education & Outreach Coordinator. OLWS provides the payroll and human resources services to the CRWP. Their source water protection program won an American Water Works Association Award in 2018. Additionally, they have been working with Portland State University to learn more about climate change in our watershed, which include changes like less snowpack, more rain, warmer temperatures, and longer summers. She highlighted the Hazardous Materials Spills Protection Program, which brings together environmental and local emergency response partners to raise awareness/protections against hazardous spills and create a geographic response plan and spill prevention program. She provided more details on this program (reference audio), which is both CRWP and grant funded, as well as other projects from the CRWP’s 2019 work. The Board asked about relationships with watershed councils and Kim responded with a list of councils and the many other partners they work closely with. The Board asked about the EcoBiz Program, and Kim responded that EcoBiz is supported primarily by the City of Gresham and Clean Water Services in Washington County. She works with Water Environment Services to focus their attention on Clackamas County.

5. Oak Lodge Community Emergency Response Team (OLCERT) Annual Report: Disaster Preparation and OLWSD Emergency Water Filters

Field Operations Superintendent Todd Knapp provided an overview of the OLWS relationship with OLCERT, and highlighted details from the Board Packet. The District has a number of emergency preparedness provisions in place and also works with a local emergency response network, OLCERT, which is an auxiliary unit of the Clackamas Fire District. They partnered with OLWS in April 2019 to run a formal "PODS" (Point of Distribution) emergency water distribution demonstration exercise at the Concord School. OLCERT also works on outreach and education for local neighborhoods on emergency preparedness. Greg Wenneson presented detailed information about the work of the OLCERT, with focus on the "Hurricane" water filters and the water stewards training and exercise program. OLCERT also presents information at local events to help local residents become more aware and prepared, as well as where the filters are located in the area. The Board asked a few questions about details of the filters and the water stewards' program and Greg responded with answers and more information (refer to audio). He also mentioned OLCERT is always looking for water stewards with access to a water source like the river, a stream, and swimming pools. His report included a timeline of future activities, including education, filter purchasing, and a budget request for the next OLWS fiscal year.

Greg requested a more formal partnership between OLWS and OLCERT. Currently, in an emergency situation, OLCERT falls under the incident command for the Clackamas Fire Department. They would like OLWS to enter into a Memorandum of Understanding with Clackamas Fire District to state that OLCERT would support OLWS in a disaster. The Board commented in disasters the Fire Department is in command unless in the case of civil unrest when the police might assume control. Greg commented they are still working out where they fit in with supporting the OLWS community in an emergency because Oak Lodge is an unincorporated area in Clackamas County. He mentioned OLWS serves in the role of government and OLCERT is looking for direction for their group training exercises. The Board asked if the MOU idea is viable with the fire department and Greg responded they are flexible, and their team appreciates working with the fire department, but they want to be able to help in specific ways. They believe supporting water resilience would be impactful.

Greg asked for an overview of the OLWS disaster strategy and the Board will get back to OLCERT with a follow up. Greg commented on the importance of considering a sanitary sewer emergency preparedness strategy and suggested the two buckets system. They teach onsite composting or bagging waste and storing in buckets. Clackamas County has not made any decisions on this issue yet.

The Board was supportive of having OLCERT in close partnership with OLWS in an emergency preparedness capacity and provided direction that OLCERT should move forward with preparedness exercises as well as direct citizen outreach and education. Director Williams commented based on his direct professional experience in this vein that he would prefer OLCERT working closely with OLWS and sees value in their volunteerism. They suggested continuing the conversation in at future meetings and appreciated the value of the partnership.

6. Supplemental Budget to Setup PERS Side Account – Resolution 19-07

General Manager Chaplen stated Finance Director Kelly Stacey is out for the holiday and Consultant Rob Moody would provide and update on the PERS developments. Rob refreshed

the Board of their approval at the November Board meeting of the decision to move ahead with the PERS payment of \$300,000, submit a state grant application, and set up a "side" account to hold the PERS payment funds. He introduced the Resolution No. 19-07 to set the supplemental budget to appropriate the PERS payment.

Director Knudson made the following motion, "I move to adopt Resolution No. 19-07 approving the supplemental budget as presented." President Keil seconded the motion.

Ayes: 5

Nays: None

Motion carried: 5-0

7. Oak Grove Blvd. American Disabilities Act (ADA) Improvements Easement Offer
District Engineer Jason Rice presented the request from Clackamas County Department of Transportation and Development (DTD) to purchase easements at the former Sanitary District Administration building property for the input of ADA Improvements at the corner of Oak Grove Boulevard. The Board discussed costs and value and concluded that it made sense to accept the offer. General Manager Chaplen commented ADA improvements will add intrinsic value to the property. The Board and staff agreed to make sure CCDTD follows the OLWS storm water quality codes, starting with green treatment options for this project. The conversation also emphasized storm water management for future CCDTD projects in OLWS. OLWS provided several examples of recent educational opportunities by OLWS to CCDTD concerning how they could improve stormwater management at the system level.

Vice President Williams moved to accept Clackamas County's offer to purchase easements at the former Sanitary District Administration property for the Oak Grove Boulevard ADA Improvements Project and approve the General Manager to sign the necessary documents to complete this transfer. Director Knudson seconded the motion.

Ayes: 5

Nays: None

Motion carried: 5-0

8. Department Reports

- **Finance Report:**

Consultant Rob Moody provided details of Finance Director Kelly Stacey's Board report. The initial grant request to the State of Oregon was unsuccessful. OLWS has two pending applications being considered, one for \$300,000 that was just allocated and the other for \$900,000 in the next budget. OLWS is 16th and 18th on the waitlist but our match amounts are small and might end up being covered. Staff intends to move forward with the contribution whether or not the grant funds come through. The Budget process is about to begin. The Financial Audit has been intensive and beneficial and will at least double the costs of what was originally projected for the year. Both the OLWS and the NCCWC audits for the year will end soon. The Water Audit process has been moving along and is at the detailed level, working next on the large meters. The source water meter testing went well and seemed to reflect the accuracy of the OLWS source water meters. The Board has the list of checks in hand for review.

The Board asked why the utility billing portion of the Financial Audit process doubled and Rob replied the project was bid on the best information available but after learning more about the OLWS financial controls and financial data they ended up needing to conduct more work than originally thought. The auditors needed to do more work on their side to be able to support their opinion on the financial statements. This increased the costs substantially. Early indicators show that OLWS will have a clean financial audit with a list of suggested changes to OLWS processes. The Board will receive a report from the financial auditors in January, before the report is submitted to the Secretary of State within the extension limit. There will be a supplemental budget brought to the Board for approval in March 2020.

- **Field Operations Report:**

Field Operations Manager Todd Knapp presented information from his report, highlighting the master meter tests and issues they solved. Preliminary results show less than 2% variation at the master meter reading level. He touched on the main breaks, which are somewhat seasonal. Todd spoke of Jessie Ramos, our newly hired utility worker on the collections team. The collections crew has been helping with plant pump replacements at the influent pump station and cleaning the storm system at the Water Reclamation Facility as part of the 1200Z permit. Grease cleaning is being done semi-annually, as well as working on monthly cleaning goals.

The Board asked about why El Camino Way was recently flooded by stormwater and Todd responded a small section of pipe in that area is on private property and will be investigated and hopefully cleaned if it contains roots. Jason mentioned that part of the system on private property has been broken by plantings on the property. He added another part of that system has a 2" pipe, which is too small for the flow. Rightsizing and replacing the pipe and fixing the system within the right of way is the responsibility of CCDTD, and the responsibility of the owners on private property. OLWS is responsible for cleaning and maintaining the line and the OLWS crew has completed this work and alerted CCDTD to the issue for their list of repairs. The homeowner has also contacted CCDTD to alert them of the issue. The Board talked further about local flooding issues and how to track, report, and address them (refer to audio).

- **Plant Operations Report:**

Plant Superintendent David Mendenhall shared his Board report in detail, highlighting challenges with pumps and pump replacement at the influent pump station. He reported on changing the responsiveness of floats and programming for Pump Station #2 to help address flooding, which will be tested. He described how the issue with the screenings compactor was addressed as well as repairs to the Ultraviolet (UV) Channels. The inventory to accompany the 2018-2019 financial audit is progressing. The plant and staff are geared up and ready for any wet weather.

- **Technical Services Report:**

District Engineer Jason Rice let the Board know that several projects are underway, including the Belt Filter Press 2 Retrofit Project, the solids piping project to retrofit the cannibal system flow at the plant, sewer line replacement project at Jade Court and Old Orchard Court to address infiltration and inflow. He described details about changes that will be made at the

Water Reclamation Facility to help reduce the amount of stormwater sampling and testing required by the 1200Z Permit. We are nearing completion for the Department of Environmental Quality's (DEQ) application process for the Pretreatment Program, having been working to develop a program, which we have not had in the past.

- **Human Resources Report:**

Human Resources and Payroll Manager Aleah Binkowski-Burk provided an overview of her Board report stressing the insurance rate increases due to industry rightsizing. The Board asked what is included in "public entity liability" and Aleah responded if OLWS were to be sued it helps protect the District and the Board. She provided a hiring update, including two new utility employees and one on the way for the District Recorder's position.

9. Call for Public Comment

There were no comments from the public.

10. Business from the Board

General Manager Chaplen requested clarification of the language to honor former Board Director Lynn Fisher. Director Van Loo and President Keil will follow up to decide on the plaque and wording.

Director Ginny Van Loo will assume responsibility for attending the Chamber of Commerce. She reported that she needs a contact for the Library Board, which she can get from Lynn Fisher.

Director Gornick updated the group on the Sunrise Water Authority meeting, and other notes from his Board Packet report, including the use of an outside company to help with bringing in people who need to participate in their Low-Income Assistance Program. assessment process next year, which provides a discount on SDAO insurance costs.

Vice President Williams updated the group there was no Jennings Lodge Community Planning Organization (CPO) meeting due to the holiday party instead. Director Gornick and G.M. Chaplen attended the party, which was very nice and well-attended.

Director Knudson attended the Oak Grove Community Council December meeting, which was very good. He commented they have tried to get into the Next Door social media arena which has been a challenge – except if you add something very newsy to Next Door. The Portland General Electric (PGE) Smart Grid project update was inspiring him to request one for our District. He highlighted the New Urban High School redevelopment project which might impact OLWS traffic flow due to student drop offs. He learned about upcoming land use projects including several existing "non-conforming use" buildings which may become Marijuana Grow facilities because of their land use designation. His proposed research agenda for the Water Research Foundation was accepted and the foundation has been successfully restructured. Director Knudson stated that Director Gornick attended the Regional Water Providers Executive

Committee meeting for him, and Mark presented an extra copy of the Annual Report for the RWPC if anyone is interested in reviewing it.

There was no further Board business.

11. Recess to Executive Session

President Keil recessed the regular public meeting for the Executive Session at 8:35 p.m. under ORS 192.660(2)(e) to conduct deliberations with persons designated by the governing body to negotiate real property transactions.

12. Executive Session

Recess to Executive Session under ORS 192.660(2)(d) to conduct deliberations with persons designated by the governing body to carry on labor negotiations.

The General Manager provided an overview of the timing for upcoming union negotiations.

Chris Duckworth summarized the collective bargaining process and gave advice and recommendations for negotiations.

No decisions were made as a result of the Executive Session.

13. Adjourned Executive Session

The Chair closed the Executive Session at 9:36 p.m.

14. Reopened Regular Public Meeting

The Chair reopened the Regular Public Meeting at 9:37 p.m. There were no Board actions and no public present.

15. Adjourn Regular Board Meeting

President Keil adjourned the regular Board meeting at 9:37 p.m.

Respectfully submitted,

Susan Keil
President, Board of Directors

Kevin Williams
Secretary, Board of Directors

Date: _____

Date: _____

OAK LODGE
WATER SERVICES
STAFF REPORT

To: Board of Directors
From: Sarah Jo Chaplen, General Manager
Agenda Item: Annual January Board Selection of Board Officers
Item No.: 6
Date: January 21, 2020

Action Requested

Board perform its annual selection of Board Officers for the following positions:
President, Secretary/ Vice-President and Treasurer.

Background

As a consolidated special district, Oak Lodge Water Services District (OLWSD) has the powers and authorities granted to both Water Districts and Sanitary Districts pursuant to ORS Chapter 264 and ORS Chapter 450, respectively. Both statutes provide that Officer elections shall occur at the first business meeting in January. The Board in a motion on December 19th, 2017 identified and reaffirmed the Board Officer positions to be filled as the following: President, Secretary / Vice-President and Treasurer.

Suggested Board Motion

“I move that the Board appoint the following Board member as President.”
“I move that the Board appoint the following Board member as Secretary/ Vice-President”, and “I move that the Board appoint the following Board member as Treasurer.”

OAK LODGE
WATER SERVICES
STAFF REPORT

To: Board of Directors
From: Sarah Jo Chaplen, General Manager
Agenda Item: Appointment of Budget Committee Members 2020/2021
Item No.: 7
Date: January 21, 2020

Action Requested

Staff request that the Board appoint the Budget Committee members for the 2020/2021 Oak Lodge Water Services District (“District”) Budget Committee.

Background

Oregon Local Budget Law ORS 294.35 through 294.565 requires the governing body to appoint the District’s Budget Committee. To avoid the entire Budget Committee turning over at the same time, each position was assigned a term. The District’s Budget Committee consists of the five members of the District Board and five electors of the District. Tonight, the Board will appoint the new members to have a fully seated Budget Committee.

The District has been fortunate in managing to attract more applicants willing to serve than is required to constitute an official Budget Committee. Consequently, there is also an alternate member willing to attend Budget Committee meetings and in reserve to be appointed as a Budget Committee member should an unexpected absence of a sitting Budget Committee member need to be filled at any time during the budget development process.

Staff Recommendation

The General Manager is recommending the Board appoint one applicant to fill the vacancy for the remainder of the unexpired term as outlined below. The General Manager is further recommending the Board appoint one applicant to participate as the Alternate Committee member.

Position No 5. _____, June 30, 2020
Alternate Member: _____

Finally, two members of the Budget Committee will be needed to serve on the North Clackamas County Water Commission (NCCWC) Budget Committee. Although they

will be officially appointed at a NCCWC meeting, we are asking the OLWS Budget Committee to choose their representatives tonight.

Suggested Board Motion

"I move that the Board appoint the following people to the Oak Lodge Water Services Budget Committee with the expiration dates outlined above:

Position No 5. _____, serving until June 30, 2020

Alternate Member: _____."

OAK LODGE
WATER SERVICES
STAFF REPORT

To: Board of Directors
From: Sarah Jo Chaplen, General Manager
Agenda Item: Local Government Investment Pool (LGIP) Contact Registration and Permissions Update – Resolution 20-01
Item No.: 8
Date: January 21, 2020

Background:

OLWSD currently has only one user with authorization to make transfers and update permissions in its Local Government Investment Pool (LGIP) Account and that individual has left the District. The LGIP requires the District's Board to authorize changes to account permissions and registered contacts for the District's LGIP account.

Staff makes routine transfers to and from the Local Government Investment Pool (LGIP) Account to ensure adequate funds are available in the checking accounts to pay bills, debt service, and employees, as well as move idle cash to the LGIP account for investment.

Requested Action from the Board:

Staff requests the Board to approve changes to account permissions and contacts registered with the LGIP to accommodate transfers to and from the LGIP.

Recommendation

Staff recommends approving changes to registered contacts and permissions with the LGIP.

Requested Action from the Board

Approve changes to the registered contacts and permissions with the LGIP as set forth in Resolution 20-01.

Suggested Motion:

"I move to adopt Resolution 20-01 approving changes to the LGIP Contact Registration and Permissions."

Attachments

1. Resolution 20-01

OAK LODGE WATER SERVICES DISTRICT

RESOLUTION 20-01

A RESOLUTION BY OAK LODGE WATER SERVICES DISTRICT BOARD OF DIRECTORS APPROVING CHANGES TO REGISTERED CONTACTS AND PERMISSIONS WITH THE LOCAL GOVERNMENT INVESTMENT POOL (LGIP).

THIS MATTER comes before the Board of Directors of Oak Lodge Water Services District, a Special District organized under Oregon Revised Statutes Chapter 450, regarding changes to registered contact and permissions with the Local Government Investment Pool (LGIP).

WHEREAS, the District has only one employee authorized to make transfers to/from the LGIP accounts managed by the District and that employee has left the District, and

WHEREAS, to the District makes routine transfers to and from the LGIP to manage cash needs of the District, and

WHEREAS, the LGIP requires Board action to change permissions related to the LGIP in the absence of authorized account users, therefore,

BE IT RESOLVED that the District's Board of Directors authorizes changes to the permissions and registered contacts with the LGIP as set forth in the LGIP Contact Registration Form and LGIP Permissions Form to be filed with the LGIP.

BE IT FURTHER RESOLVED, that the District's Board of Directors is authorizing Sarah Jo Chaplen, General Manager, Jason Rice, Engineer, and Jeff Voreis, Accountant, to be the District's registered contacts with the LGIP for purposes of managing the accounts and permissions for the Oak Lodge Water Services District and the North Clackamas County Water Commission.

ADOPTED this 21st day of January 2020.

OAK LODGE WATER SERVICES DISTRICT

By _____ By _____
Susan Keil, President Kevin Williams, Secretary

OAK LODGE
WATER SERVICES
STAFF REPORT

To: Board of Directors
From: Sarah Jo Chaplen, General Manager
Agenda Item: M36 Non-Revenue Water Phase I completed and Phase II Draft Audit Report
Item No.: 9
Date: January 13, 2020 for January 21, 2020 Meeting

Action Requested

Board review of the preliminary M36 Non-Revenue Water Audit report on Phase I and the draft report on Phase II by Cavanaugh & Associates, P.A.

History

February 2018 The Board approved contract with Water Systems Consulting (WSC) to begin a water master plan update.

May 2019 The Board approved contract for new financial auditor services with Moss Adams, LLP. The Board expressed their support for the new auditor, their process, their commitment to transparency, and their interest in making sure the audit reveals new ways of organizing OLWS systems effectively.

October 2019 Board approved contract with Cavanaugh & Associates, P.A. to perform an M36 American Water Works Association (AWWA) Non-Revenue Water Audit Phase I and Phase II.

January 2020 After an Intermediate procurement process the General Manager will be signing a contract with Cavanaugh & Associates, P.A. to perform Phase III and Phase IV of the Non-Revenue Water Audit.

Background

Both WSC and Moss Adams, LLP identified a gap for OLWS between the amount of water purchased by the District and sold to our customers. It appears that this has been an issue for multiple years. OLWS history was examined back to 2014 prior to consolidation in January 2017.

It is important to understand that all water utility distribution systems incur leakage (real losses). Similarly, all water utilities fail to recover revenue from all of the water that is (or should be) billed to customers (apparent losses). While every system is unique, all water utilities should employ leakage control and revenue recovery programs that strive to keep losses contained to appropriate, economically justified levels.

AWWA recommends that water utilities should track the annual volumes of water they manage, measuring not only the amount of water supplied to their customers, but also water used for operational purposes and water lost. The foundation of a water loss control program is the annual water audit. An audit is a systematic examination of records and financial accounts to check their accuracy and ensure the viability of the district being audited. AWWA's water audit methodology is the best practice approach recommended for North American water utilities to employ, which provides consistent and reliable performance tracking and benchmarking for and among water utilities.

OLWS needed a nationally recognized and experienced vendor in this area in order to set a validated baseline of data as a starting point. Cavanaugh & Associates, P.A. has worked with over 1,000 water utilities for AWWA top-down water auditing and validation. It is envisioned OLWS will follow AWWA's recommendation as a best practice to perform this water audit on an annual basis.

Phase I has been completed. During this phase the uncertainty in the benchmark water balance is assessed for further analysis. This provides a calibration point for continued improvement. Phase II validates the source data from the originating data systems feeding the water balance inputs and establishes statistical confidence levels on the water balance outputs. It focuses on the utility billing data. For OLWS parts of Phase III were moved up into the Phase II work: the testing of the source water meters and an examination of our finished water meters. It is anticipated Phase II will be completed by the end of January.

Moss Adams, LLP (the OLWS financial auditor) received their preliminary report from Cavanaugh & Associates, P.A. on December 20, 2019 as promised. This report provided information useful to Moss Adams, LLP in their financial audit work for OLWS.

Recommendation

Staff seeks feed-back from the Board on the preliminary reports for Phase I and Phase II of the M36 Non-Revenue Water Audit report.

Suggested Board Motion

None required.

Attachments

1. Technical Memorandum from Cavanaugh & Associates, P.A. on Phase I and draft Phase II.

TECHNICAL MEMORANDUM -----DRAFT-----

**Oak Lodge Water Services District, Oregon
Non-Revenue Water Analysis – Phase I & II**

PREPARED FOR:	Oak Lodge Water Services	DATE:	December 2019
PREPARED BY:	Cavanaugh	PROJECT NUMBER:	WE.19.076
PROJECT DIRECTOR:	Tory Wagoner, P.E.	PROJECT TEAM:	Will Jernigan, P.E. Larry Lewison Steve Cavanaugh, P.E.

Executive Summary

Cavanaugh conducted a preliminary Non-Revenue Water (NRW) analysis for the Oak Lodge Water Services District (OLWSD) Potable Water System, performed per standards of the IWA/AWWA Water Audit Method, M36 Manual for Water Audits & Loss Control Programs and the WRF Level 1 Water Audit Validation Guidance Manual. This phase of the overall project included preparation of a Level 1 Validated top-down water audit (CY2018) utilizing the AWWA Free Water Audit Software (version 5.0). The objective of this Level 1 validation is to provide a calibration point for continued improvement in the future as OLWSD completes their annual audit. Additionally, as part of Phase II, a Real Loss Component Analysis and billing data Level 2 validation were also conducted. Finally, coordination and support was provided as staff performed supply meter flow verification testing.

The Oak Lodge Water Services District has been proactive in their approach and investment in managing Non-Revenue Water. Their efforts to make improvements towards an optimized system should be commended. Through our interactions with staff in the preparation of this analysis, it is apparent the adoption of a water loss focused culture within the organization is well underway.

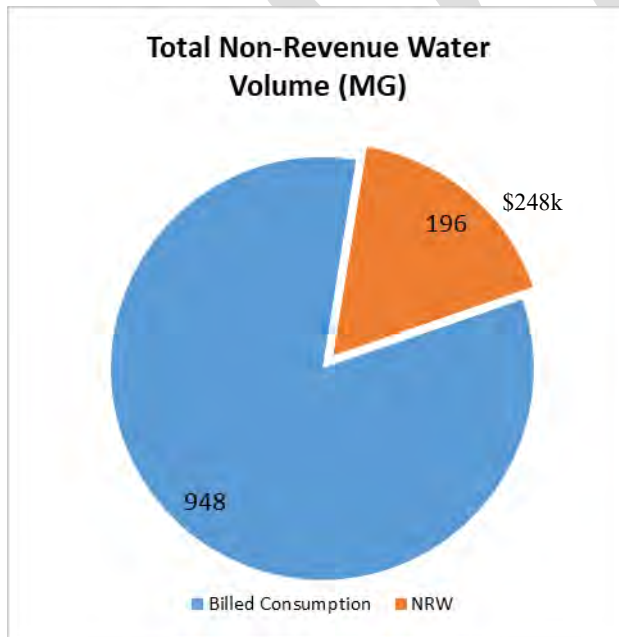


Figure 1 – Total NRW (MG) – Calendar Year 2018

The outcome of this project provides OLWSD with a validated baseline audit with which to begin economic analysis and the development of a comprehensive NRW Management program.

Metrics presented in this analysis are in terms of validity, volumes and values of loss. Loss as a percent of water supplied has been deemed by AWWA to be obsolete and unreliable for managing water loss performance and is not included in this analysis.

The NRW levels revealed from the water audit for the OLWSD system are approximately 196 million gallons (MG) with a total cost of \$248,000 annually.

The composite Data Validity Score is 50. The Data Validity Score is one of the core features of the M36 methodology. It allows for an assessment of the

accuracy of the information included in the audit, thus placing focus on data improvement as well as performance improvement.

The score of 50 (out of max 100) represents a mid-level data score in comparison to other validated audits, and is classified by the software as a Band II score. The score can be used to guide future data collection improvements to improve the overall accuracy of the audit. At this composite value, additional improvement in the data accuracy should be pursued while beginning to develop economic based targets. The composite data validity score should be considered the validated score as the individual assessments were assigned based on the recent additional guidance language developed in the State of California statewide Technical Assistance Program. It is anticipated that the next version of the Free Water Audit Software, scheduled for release in 2020, will include this guidance directly.

The Infrastructure Leakage Index (ILI) from the top-down audit was calculated as 2.6. The ILI is derived as the ratio of Current Annual Real Loss (CARL) to the Unavoidable Annual Real Loss (UARL) with a system operating at its technical minimum of Current Annual Real Loss having a score of 1.0. An ILI of 2.6 would be within the typical range of North American utilities. Additional performance indicators can be found in the body of this memo.

Efforts to lower the volumes of NRW will require capital and operational investment and should be engaged only with a business case justification. Successful implementation of an enhanced NRW management program will take time to develop as the returns gained from intervention can be used to fund further efforts.

The recommendations listed below are preliminary based on best practices similar utilities have found successful. An economic based, comprehensive water loss control program will be fully developed in Phase IV of this project.

Focus Area	Guidance for Program Design
Data Validity & Program Management	<ul style="list-style-type: none"> • Establish regular water team meetings. This should include appropriate representation from applicable departments and be led by the Water Loss Coordinator; • Establish detailed, written data collection protocol and monthly tracking mechanism to be consistent with M36 methodology; • Prepare an annual top-down audit utilizing AWWA Free Water Audit software; • Perform Economic “Gap” Analysis to compare current NRW practices to economic based targets; • Utilize “Gap” Analysis to design comprehensive effective NRW Management Program; • Develop a plan for internal/external communication of efforts and results;
Production	<ul style="list-style-type: none"> • Establish Finished Water Meter Program to perform flow accuracy testing and signal calibration on an annual basis for supply meters;
Billing & Metering	<ul style="list-style-type: none"> • Perform meter field evaluation to verify that billing system information is correct. Information should include verification of meter serial number, meter brand/type, meter size and read units/multiplier. Additionally, while at each meter any general maintenance items (lid broken, etc.) can be noted and a location (GPS point) collected. • Establish a separate rate code for internal facility accounts to allow for separation as Unbilled, Metered Authorized Consumption. • Evaluate policies on the handling of non-payment customers.

	<ul style="list-style-type: none"> • Evaluate policies relative to bill cycle auditing including discovery of mis-reads, meter rollover, high/low/zero exceptions, largest revenue account verification, etc. • Establish large meter testing program to utilize revenue-based testing frequencies and subsequently guide repair/replacement decision based on revenue impacts (for all meters) to include use of flow profiling for appropriate composite performance average; NOTE: This may require capital improvements to vaults and large meter piping to allow for proper testing set-ups. • Establish small meter testing program to include random testing of various subgroups of meters as population begins to age/build use; • Evaluate implementation of statistical sampling of flow profiling to inform small meter testing program; • Engage in conversation with adjacent utilities to “clean” the system boundaries (i.e. billing the adjacent utility for water delivered to their individual customers);
<p>Leakage Management</p>	<ul style="list-style-type: none"> • Develop District Metering Area Pilot program with focus on Minimum Night Flow analysis for real loss management; • Develop Pressure Optimization Pilot program for reduction in break frequencies and background leakage component;

Methodology

Central to the IWA/AWWA Water Audit Method and M36 Manual for Water Audits & Loss Control Programs is the Water Balance. The balance is developed based on the principle that water can neither be created nor destroyed. Thus, the balance begins with the finished water supplied into the system and then allocating the water into Authorized Consumption and Water Losses. Each of these categories are broken down into sub-components to further describe the use of the water. Losses are segregated into Apparent and Real losses and each are valued and addressed differently.

Apparent or “paper losses” represent losses whereby the finished water reaches an end-user but the utility is not properly compensated for its use. Examples of this include unauthorized consumption (theft), data handling errors and under-registering customer meters. Because these losses represent lost revenue, they are valued at the customer unit retail rate.

Real Losses represent losses whereby finished water escapes the distribution system through leakage. Because the water has not reached an end user, these losses are valued at the variable production rate or the cost the utility expends to make an additional unit of water.

The water balance is a top-down analysis, as the remainder after authorized consumption and apparent losses are subtracted from water supplied results in the real losses.

Additionally, along with real losses and apparent losses, Non-Revenue Water includes Unbilled, Authorized Consumption. This is water utilized by the utility for operational use that does not generate revenue. Examples of these uses are flushing, fire department training, suppression or hydrant testing.

Secondary analysis can be completed on the real losses by conducting an annual real loss component analysis, working from the bottom up to estimate the volumes of each of the three sub-components of real loss. These sub-components are background leakage, reported leakage and unreported leakage. Background leakage is a function of the condition of the piping system. Reported leakage is estimated

using reactive (locating, repairing, and estimating volumes of leakage as it surfaces) leak detection results and unreported is estimated using any proactive leak detection results. The sum of these three sub-components can be compared to the water balance real loss value for confirmation. Alternatively, a spot check can be undertaken by analyzing minimum night flows.

The AWWA Free Water Audit Software v5.0 was utilized to conduct a preliminary top-down water balance. A high-level review was performed on the existing water audit data and then used as the benchmark for this analysis. The analysis was conducted in strict conformance with the methodologies described in the AWWA M36 Manual for Water Audits & Loss Control Programs. Standard terminology from this method is provided at the end of this report.

The software includes an assessment of the reliability of the data inputs using a scale of 1 to 10 based on a prescriptive set of criteria. A weighted total Data Validity Score is then calculated by the software to provide guidance on overall reliability of the results. The composite score is not meant to be a pass/fail evaluation but rather an accurate description of the current practices as it relates to the criteria. The potential investment by a Utility to achieve the next highest score must be carefully evaluated to assure it will result in an increased accuracy of the data input. The score should be used to benchmark a utility as it begins a water loss control program. For utilities with established resources and developed intervention methods, there is often less increase in the score year after year.

Audit Boundary

One of the most important aspects of a water audit is the formalization of the audit boundary. Based on the concept of the water balance (mass balance), it is essential to fully understand the delivery points into the system and then proper accounting for the water from that point to the extents of the audit boundary at the delivery point to authorized users. For OLWSD, all treated water is imported from the North Clackamas County Water Commission (NCCWC). This water is metered prior to entering the distribution system and made available for consumption. Thus, the audit boundary for this analysis was established starting at the two supply water meters and ending collectively at the customer/wholesale meters. It should be noted that there are several areas where the system boundary overlaps with adjacent utilities. In these cases, OLWSD delivers water to the other utility’s customers, billing the utility based on a combination of the individual customer meters. There have been instances where a system delineation valve (closed) has been discovered to be leaking past or partially open.

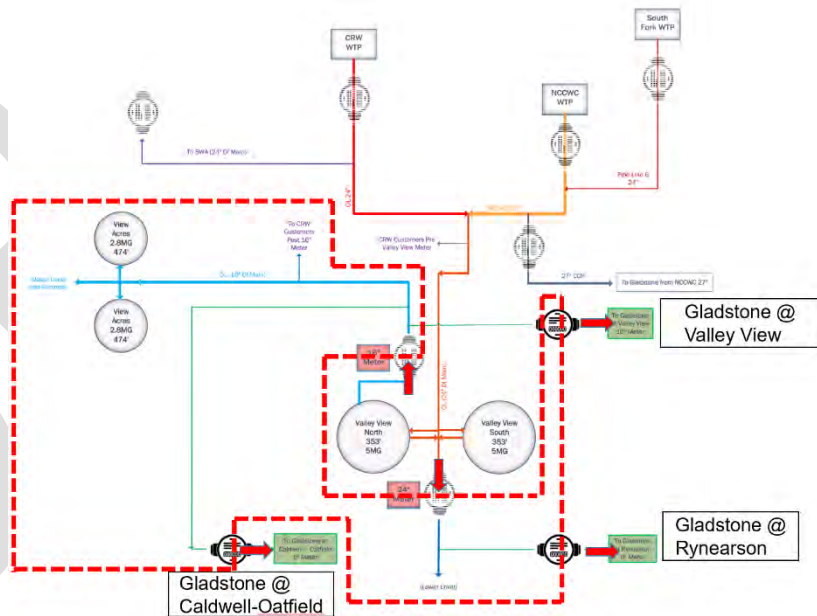


Figure 2 – Audit Boundary

Thus, the audit boundary for this analysis was established starting at the two supply water meters and ending collectively at the customer/wholesale meters. It should be noted that there are several areas where the system boundary overlaps with adjacent utilities. In these cases, OLWSD delivers water to the other utility’s customers, billing the utility based on a combination of the individual customer meters. There have been instances where a system delineation valve (closed) has been discovered to be leaking past or partially open.

Existing NRW Management Practices

Summary of Findings

AWWA Free Water Audit Software Water Balance Components

WATER SUPPLIED

Volume from Own Sources:

OLWSD does not produce any of its own water.

Volume from Own Sources: Master Meter Error Adjustment:

Not applicable

Water Imported:

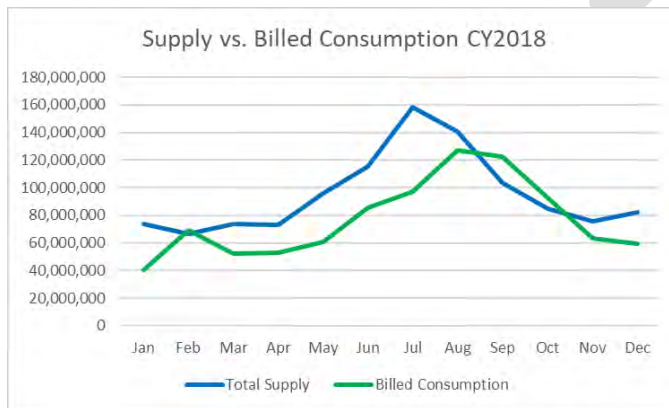


Figure 3 – Volume Comparison (MG)

OLSWD purchases its water from the NCCWC, of which it is a partial owner, with 100% of the finished water delivered to the system being metered. A 16” mag meter feeds the upper zone by way of a pumping station and a 24” mag meter feeds the lower zone by gravity flow.

Electronic signal calibration of these meters was conducted approximately six years ago, but flow verification testing had not been performed prior to this project.

A data grade of 3 was assigned with the frequency of flow accuracy testing and/or electronic calibration as the limiting criteria. A data grade of 7 would be achievable with the continuation of flow accuracy testing on an annual basis (pending appropriate results).

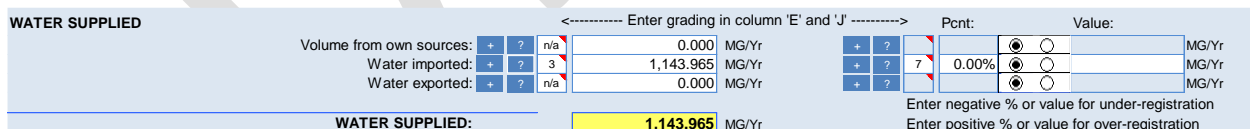


Figure 4 – Water Supplied Section from Water Audit Software

Water Imported: Master Meter Error Adjustment:

After a thorough site review, it was determined that drawdown testing was feasible and the most effective option for verifying the supply meters. On December 10th and 11th, staff conducted the testing. Based on the preliminary results, a zero adjustment was made to the audit volume, as the error was within the limitations of the testing process (utilizing field collected measurements).

16" Supply Meter

	<u>Volume Meter</u>	<u>Volume Depth</u>	<u>Difference</u>		
1 Pump Running Test:	277,000	279,180	-2,180	-0.79%	UNDER-REGISTRATION
2 Pump Running Test:	239,000	241,903	-2,903	-1.21%	UNDER-REGISTRATION
Total Test:	516,000	521,084	-5,084	-0.99%	UNDER-REGISTRATION

24" Supply Meter - SCADA

GPM		<u>Volume Meter</u>	<u>Volume Depth</u>	<u>Difference</u>		
1397.33	4:45 to 11:00 pm	524,000	511,204	12,796	2.44%	OVER-REGISTRATION
820.00	11:00 pm to 4:00 am	246,000	244,410	1,590	0.65%	OVER-REGISTRATION
1248.15	4:00 am to 8:30 am	337,000	359,686	-22,686	-6.73%	UNDER-REGISTRATION
2544.44	9:15 am to 10:45 am	229,000	475,875	-246,875	-107.81%	UNDER-REGISTRATION

24" Supply Meter – Field Readings

GPM		<u>Volume Meter</u>	<u>Volume Depth</u>	<u>Difference</u>		
1175.00	4:30 pm to 8:30 am	1,128,000	1,108,790	19,210	1.70%	OVER-REGISTRATION
5066.67	9:15 am to 10:45 am	456,000	456,047	-47	-0.01%	UNDER-REGISTRATION

Figure 5 – Water Supplied Section from Water Audit Software

It should be noted that the 8:30 am and 10:45 am meter readings from SCADA were determined to be erroneous and the field readings used for the final evaluation. Staff relayed that SCADA readings have been determined to be incorrect in the past, and actual field readings are used for the monthly accounting.

For future audits, if the test results fall outside of +/- 2%, an adjustment should be considered with the calculation being performed as a volumetrically weighted average.

OLWSD tracks the levels of its distribution storage but changes in these levels were determined to be negligible. Production data is reviewed daily, but a field reading is only collected monthly. All supply meters are connected to a SCADA system, thus continuously read, however, manual readings are used for data tracking and the audit input.

A data grade of 7 was assigned with the daily data review (of field readings) as the limiting criteria.

Water Exported:

Water Exported: Master Meter Error Adjustment:

Not applicable

AUTHORIZED CONSUMPTION

Billed Metered:

Small (less than 1") customer meters are read and billed bi-monthly. Large customer meters are read and billed monthly. Meters are currently being migrated from manual meter reading to a radio read system and include full replacement of all meter bodies (mechanical style).

Meters are read generally around the 15th of the month with all bills generally sent by the end of the month. Currently, all customers are billed in units of hundreds of cubic feet (ccf). The billing and read softwares generate consumption flags for zero, high and low consumption.

Customer leaks are adjusted at the request of the customer after a review process to determine the viability of the claim.

There is not currently a customer meter testing program in place due to the recent wholesale replacement.

This input is derived from summary level data that is summarized by month, by service code. A lag time adjustment has been made to the volumes and is discussed further in the advanced validation section of this report.

A data grade of 3 was assigned with the limiting criteria being current meter testing practices.

AUTHORIZED CONSUMPTION			
Billed metered:	+ ? 3	947.587	MG/Yr
Billed unmetered:	+ ? n/a	0.000	MG/Yr
Unbilled metered:	+ ? 8	0.202	MG/Yr
Unbilled unmetered:	+ ? 5	2.860	MG/Yr
AUTHORIZED CONSUMPTION:		950.649	MG/Yr

Pcnt: Value: MG/Yr

Click here: ? for help using option buttons below

Use buttons to select percentage of water supplied

Figure 6 – Authorized Consumption Section from Water Audit Software

Billed Unmetered:

Per OLWSD staff, there are no unmetered customers in the system.

Unbilled Metered:

Volumes for use by internal facilities are incorporated as billed, metered consumption as they flow through the normal billing process and are combined on a “no bill” rate code along with non-payment accounts. We recommend creating a new bill rate code specifically for these accounts such that they can be properly allocated as unbilled volumes. This current input is represented as operational use that is metered.

A data grade of 8 was assigned based on the regular meter reading process.

Unbilled Unmetered:

OLWSD staff has begun tracking estimates of operational use volumes and fire department usage. However, for the audit period, the information was considered incomplete, so a default value of 0.25% of the Water Supplied was utilized.

A data grade of 5 was assigned based on the use of a default.

APPARENT LOSSES

Unauthorized Consumption:

The default value of 0.25% of volume of water supplied was used for this input. This correlates to a volume of 2.86 million gallons per year. There is an awareness and emphasis placed with staff to be diligent in looking for unauthorized use. Staff relayed that while they are aware of minimal theft from the water system, it does not seem in excess to other systems.

Based on current policies, the volume used is likely representative of this component of apparent loss. By use of the default, a data grade of 5 was automatically assigned.

Apparent Losses

Unauthorized consumption: MG/Yr
 Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies: MG/Yr
 Systematic data handling errors: MG/Yr
 Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: MG/Yr

Pcnt: Value: MG/Yr
 0.25% MG/Yr
 3.40% MG/Yr
 0.25% MG/Yr

Figure 7 – Apparent Losses Section from Water Audit Software

Customer Meter Inaccuracies:

The customer meter testing and replacement programs were described under the Billed, Metered Authorized Consumption section. For the input, volumetrically weighted average was calculated with the meter population divided in to three distinct sub groups. First, the accuracy of small meters that have yet to be replaced (or were yet to be replaced during the audit period) were estimated based on limited test data collected for this project. OLWSD staff obtained approximately 30 meters from the bin of recently replaced meters and these meters were bench tested by a third-party. The full results are captured in the exhibits. For the final composite calculation, a 15/70/15 breakdown was used for the low/mid/high flow rates. Additionally, “stuck” meters were removed from the calculation based on the staff description of the handling of the meters post removal from the system. The accuracy of recently replaced meters and large meters were estimated.

	% of Volume	Inaccuracy	Weighting
Residential (To Be Replaced)	35%	6%	2.1%
Residential (Replaced)	35%	1%	0.4%
Large	30%	3%	0.9%
	100%		3.4%

Figure 8 – Customer Metering Inaccuracy Calculation

A data grade of 3 was assigned with the limiting criteria being the inferred input estimate.

Systematic Data Handling Errors:

The use of the default value of 0.25% of the Billed Authorized consumption is applicable based on interviews with staff.

By use of the default, a data grade of 5 was automatically assigned.

SYSTEM DATA

Length of Mains:

OLWSD has a well-maintained GIS system, and this system was used to generate the input. It was confirmed that the input does include hydrant laterals.

A data grade of 9 was assigned based on the current method of input generation.

SYSTEM DATA

Length of mains: 110.5 miles

Number of active AND inactive service connections: 8,591

Service connection density: 78 conn./mile main

Are customer meters typically located at the curbside or property line? Yes

Average length of customer service line: 0 (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: 86.0 psi

Figure 9 –System Data Section from Water Audit Software

Number of Service Connections (Active & Inactive)

The number of active and inactive service connections (taps on the distribution piping network) is often difficult to quantify exactly. Most utilities have multiple accounts on the same connection or at the same location. For OLWSD, this input was generated from the GIS system and represents a unique count of meter pit locations.

A data grade of 9 was assigned based on the confidence in the input by staff. It is believed the number is accurate to +/- 1% of actual taps.

Average length of Customer Service Line

OLWSD staff reported that all service connections are located at the right-of-way or property line.

Average Operating Pressure

The OLWSD system is relatively simple hydraulically and operates with 2 main pressure zones or districts. There is a small, looped subzone. Staff relayed that pressures could range between 40 and 95 psi. Pressure is monitored via telemetry at operational points, thus defined as basic telemetry. A calibrated hydraulic model has been prepared and is maintained. The input of 86 PSI was derived from an export from the hydraulic model.

A data grade of 5 was assigned with the limiting criteria being the telemetry monitoring of pressure in the system being classified as basic.

COST DATA

Total Annual Cost of Operating Water System:

OLWSD maintains very detailed financial records for the water utility. The overall cost to operate the water system for fiscal year 2017-2018 was approximately \$3.4M. This figure was provided by the financial department through a detailed breakdown of all accounts. The inclusion of capital debt repayment was confirmed.

A data grade of 10 was assigned based on reliable record keeping and cost tracking. An annual 3rd Party CPA audit is standard practice.

COST DATA

Total annual cost of operating water system: \$3,421,600 \$/Year

Customer retail unit cost (applied to Apparent Losses): \$3.12 \$/100 cubic feet (ccf)

Variable production cost (applied to Real Losses): \$921.65 \$/Million gallons Use Customer Retail Unit Cost to value real losses

Figure 10 –Cost Data Section from Water Audit Software

Customer Retail Unit Cost:

The composite customer unit retail cost was calculated to be \$3.12/ccf. OLWSD’s rate structure includes a residential and non-residential rate. The residential is an increasing block based on use. Additionally, sanitary sewer volumes are billed volumetrically (winter average) and were therefore incorporated in to the calculation. The input was derived by dividing the total consumption based revenue by the total volume sold.

A data grade of 9 was assigned based on the effective rate structure and weighted nature of the calculation.

Variable Production Cost:

The variable production cost was calculated using the primary costs of purchasing water from the NCCWC and then distribution power costs. For this phase of the project, secondary costs were not considered. The resultant calculation yielded a variable production cost of \$921.65/MG.

A data grade of 5 was assigned based on the inclusion of only primary costs. Examples of other secondary costs would be liability from leak events, capacity expansion costs or other environmental/political impacts. A detailed analysis of all applicable secondary costs to calculate a true cost of leakage for the system will be completed in the economic analysis phase of this project.

Top Down Water Audit Results

The following figures show the final results from the Level 1 validated Water Audit. These results establish the current benchmark volumes, values, validity and performance indicators.

AWWA Free Water Audit Software: <u>Water Balance</u>					
Water Audit Report for: Oak Lodge Water Services					WAS v5.0
Reporting Year: 2018					American Water Works Association. Copyright © 2014. All Rights Reserved.
Data Validity Score: 50					
Own Sources (Adjusted for known errors)	0.000	Water Exported	0.000	Billed Water Exported	Revenue Water
					0.000
System Input	1,143.965	Water Supplied	1,143.965	Billed Authorized Consumption	Revenue Water
				947.587	947.587
				Billed Unmetered Consumption	947.587
				0.000	
Water Imported	1,143.965	Water Losses	193.316	Unbilled Authorized Consumption	Non-Revenue Water (NRW)
				3.062	0.202
				Unbilled Unmetered Consumption	2.860
				Apparent Losses	2.860
				Customer Metering Inaccuracies	33.359
				Systematic Data Handling Errors	2.369
				Unauthorized Consumption	2.860
				Leakage on Transmission and/or Distribution Mains	Not broken down
				Leakage and Overflows at Utility's Storage Tanks	Not broken down
				Leakage on Service Connections	Not broken down
				Real Losses	154.729

Figure 11 –Completed Water Balance from Water Audit Software

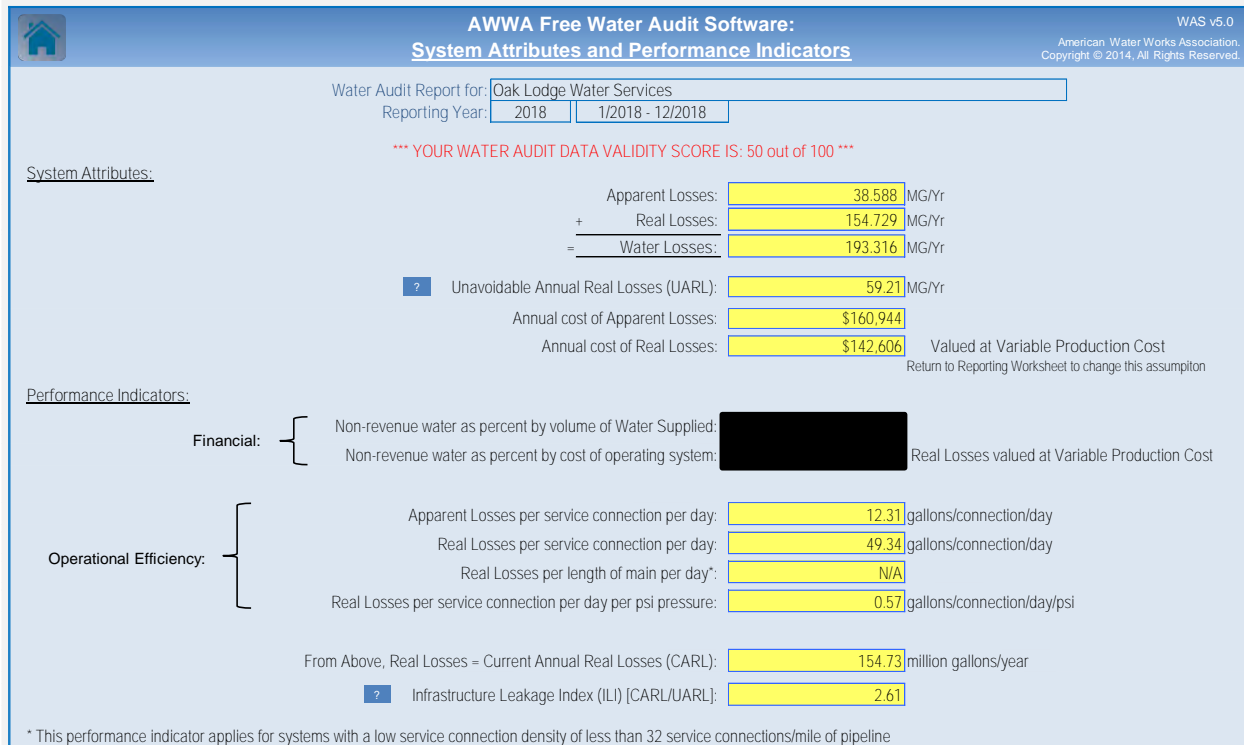


Figure 12 –System Attributes and Performance Indicators from Water Audit Software

Percentage indicators, while reported in the audit software (v5) have been purposefully excluded from the analysis, as they are ineffective for both performance benchmarking and target setting. Use of the percentage metric as an indicator of performance is no longer recommended by AWWA. Version 6 of the software (Spring 2020) will eliminate all percentage indicators. Included as an exhibit is a Best Management Practice narrative used by AWWA to educate the industry on the issues associated with percentage indicators.

The resultant metrics of Apparent Loss per service connection per day and Real Loss per service connection per day fell within expected ranges for a system at this level of tracking and error checking business practices.

The Infrastructure Leakage Index fell within the typical range as well. The resultant leakage volume was deemed reasonable based on the description of break rates and infrastructure integrity.

Additionally, the scope of this analysis does not speak to the outcomes of the audit relative to economic based targets for this system. Those outcomes are recommended for future phases of analysis.

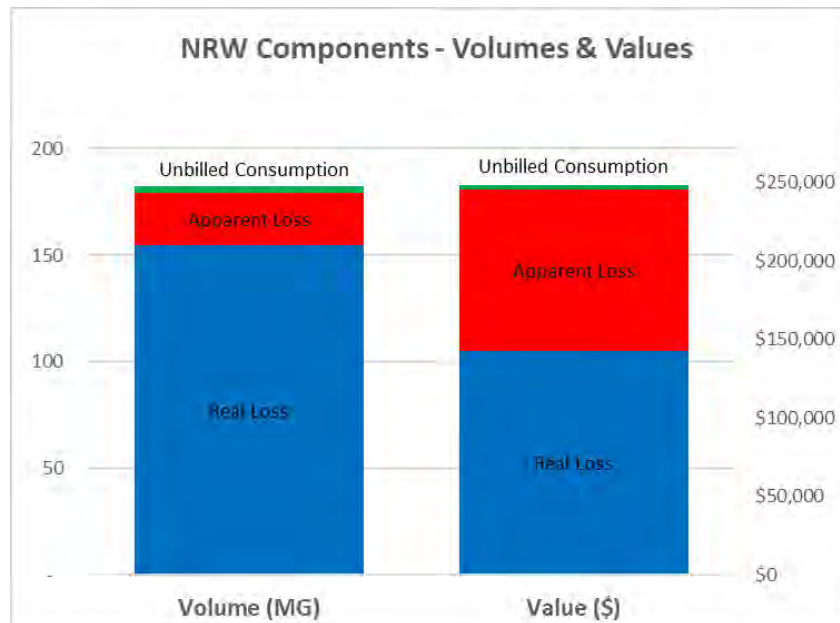


Figure 13 – NRW Components – Volumes & Values

The composite Data Validity Score is 50. The Data Validity Score is one of the core features of the M36 methodology. It allows for an assessment of the accuracy of the information included in the audit, thus placing focus on data improvement as well as performance improvement.

The score of 50 represents a mid-level data score in comparison to other validated audits and is out of maximum score of 100. The score can be used to guide future data collection improvements to improve the overall accuracy of the audit. At this composite value, additional improvement in the data accuracy should be pursued while beginning to develop economic based targets. This composite data validity score should be considered the Level 1 validated score as the individual assessments were assigned based on the recent additional guidance language developed in the State of California statewide Technical Assistance Program. It is anticipated that the next version of the Free Water Audit Software, scheduled for release in 2020, will include this guidance directly.

Trends in Water Loss Inputs and Metrics

Previous to this project, OLWSD has not completed an AWWA water loss audit and but has done required regulatory reporting. In order to provide a more regular and effective means to track water loss, a data tracker has been established and used in this analysis.

Overall, volumes of Water Supplied and Billed Metered Consumption are on a downward trend for the most recent review periods. These reductions are at a very similar rate, thus leaving NRW at a relatively flat rate. Staff related that the most recent summer was much cooler and wetter than previous, likely the main culprit of the reductions – due to reduced irrigation demands. It should be noted that this reduction of supply volumes with no change in NRW causes the NRW percentage to increase, further reinforcing why it should not be used as a performance indicator. As additional data points are added, a more extensive trend analysis can be completed.

The chart below shows the monthly volumes along with a trailing twelve-month average (preceding 12 month total divided by 12).

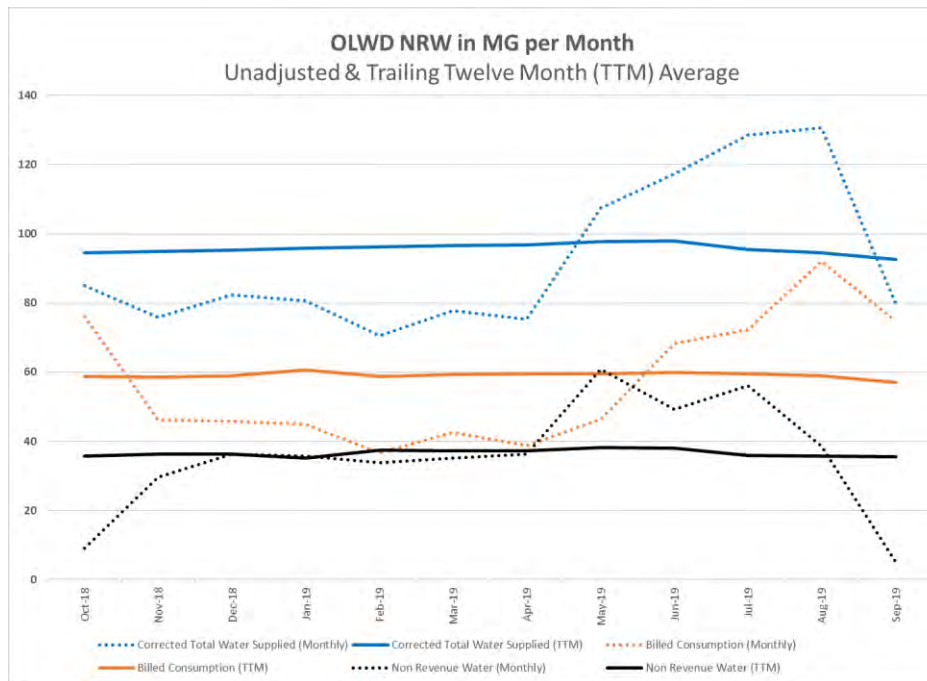


Figure 14 – Trailing Twelve Month (rolling average) Volumes

Water Balance Statistical Analysis

To perform a greater level of analysis, the need to enhance the analysis beyond the AWWA Free Water Audit Software is required. The free software reports outputs in absolute values. While the Data Validity Score provides some insight into the reliability of the associated inputs and thus outputs, advanced techniques are needed to provide additional insight into the accuracy of the water balance components.

Utilizing a statistical confidence limits approach is accepted internationally as a best management practice for assessing accuracy in water balance components. This moves the analysis beyond the free software into a Cavanaugh-developed model following the same M36 principles. The benefits of this allows for a disaggregation of the components so that detailed understanding of the specific inputs that are having the greatest impact on the water balance can be identified. This provides specific direction and focus for continued improvement of water loss performance indicators.

This process involved assigning a 95% confidence limit to each input of the water balance. These limits were chosen based on our experience and assessment of current data collection means and methods. For each of the performance indicators and audit outputs, the confidence limits are calculated based on the inputs included in the calculation of that specific metric. Based on the assigned confidence limit for each metric, the performance range (plus/minus) can be established. These performance ranges provide

insight relative to the decision making associated with further action, including the plausibility of the water balance results.

Additionally, a Level 2 validation of the billed metered volumes was performed. Level 2 validation techniques include an in-depth analysis of the existing data used previously, only at an increased level of detail. Rather than evaluation of the summary level billed metered volumes, volumes are analyzed on an account level basis. The following describes the results of this additional analysis.

WATER SUPPLIED

Water Imported:

In the Level 1 process, supply volumes are provided by metered connection, thus allowing disaggregation of the Water Supplied Volume. Confidence limits were assigned based on review of existing testing/calibration processes, site visits and staff descriptions of each location.

Existing Water Balance Information - Oak Lodge Water Services District						1/1/2018 - 12/31/2018	
Component (input, output)	%	Volume MG/Yr	95% Confidence Limits	Std. Deviation	Variance	Input Ranking for Improvement	
Water Produced							
Water Imported (MG/Yr)							
16"		357.46	3.0%	5.4	28.75	3	
24"		786.51	3.0%	11.8	139.18	1	
Water Exported (MG/Yr)		0.000	0.0%	0.00	0.00	33	
Corrected Total Water Supplied (MG/Yr)		1,143.966	2.3%	13.0	167.93		

Figure 15 – Water Supplied by Source

Improvement to the confidence of these supply volumes has already been enacted with the initial drawdown testing discussed earlier.

Billed Metered:

For the Level 2 validation of the billed metered volumes, a detailed billing analytics analysis was completed. This process consisted of analysis of account level monthly consumption. The data was exported out of the billing software and included billed volume, revenue, read date, previous read date, meter reading, previous meter reading, multiplier and applicable account and meter information for each month in the audit period along with the previous and subsequent months.

Existing Water Balance Information - Oak Lodge Water Services District						1/1/2018 - 12/31/2018
Component (input, output)	%	Volume MG/Yr	95% Confidence Limits	Std. Deviation	Variance	Input Ranking for Improvement
No valid rate could be found.		14.939	5.0%	0.4	0.14	11
1" Fire Line		0.000	3.0%	0.0	0.00	33
1" Inside		43.713	3.0%	0.7	0.43	8
2" Fire Line		0.151	3.0%	0.0	0.00	28
2" Inside		84.264	3.0%	1.3	1.60	4
3" Fire Line		0.016	3.0%	0.0	0.00	32
3" Inside		3.724	3.0%	0.1	0.00	20
4" Fire Line		0.694	3.0%	0.0	0.00	25
4" Inside		12.866	3.0%	0.2	0.04	15
6" Fire Line		1.035	3.0%	0.0	0.00	24
6" Inside		42.853	3.0%	0.6	0.41	9
8" Fire Line		5.067	3.0%	0.1	0.01	19
8" Inside		3.604	3.0%	0.1	0.00	21
10" Fire Line		1.237	3.0%	0.0	0.00	23
10" Inside		0.000	3.0%	0.0	0.00	33
1-1/2" Inside		83.679	3.0%	1.3	1.58	6
3/4" Full		2.289	3.0%	0.0	0.00	22
3/4" Outside		0.505	3.0%	0.0	0.00	26
5/8" Inside Water		603.629	3.0%	9.1	81.98	2
5/8" Low Income Rate		8.451	3.0%	0.1	0.02	18
Gladstone 5/8"		9.499	3.0%	0.1	0.02	17
Gladstone Large Mtr 1		0.090	3.0%	0.0	0.00	29
Gladstone Large Mtr 2		0.026	3.0%	0.0	0.00	31
Gladstone 1 1/2"		0.039	3.0%	0.0	0.00	30
Lagtime Adjustment/Billing Adjustment		25.216	10.0%	1.3	1.59	5
Billed unmetered (MG/Yr)		0.000	0.0%	0.0	0.00	33
Billed Authorized Consumption		947.587	2.0%	9.4	87.82	
Non Revenue Water (MG/Yr)		196.379	16.3%	16.0	255.75	

Figure 16 – Billed Authorized Consumption by Customer Classification

With this information an account level lag-time adjustment was calculated. The purpose of this calculation was to better align the production volume with the consumption volume. As an example, the meter readings conducted in January 2018, represent consumption that occurred in November and December of 2017, which is the previous audit period.

The lag-time was calculated in two parts. First, the front-end volume was subtracted off volumes from the December 2018 period that occurred in calendar year 2017. Thus, the read date for January 2018 was compared with the previous read date to calculate the number of days in the period. The consumption for the period was divided by the days in the period to calculate a consumption per day. The number of days in the period before January 1 was then subtracted from the January reported consumption.

The process was repeated for the last period in the audit, with these volumes being added to the annual consumption by utilizing the January 2019 read dates and consumption to add to the reported consumption for December 2018.

The final combination of the front end and back end adjustments resulted in an increase in the billed metered volume by 25.216 MG.

Billing Data Integrity Review Process

A Level 2 Validation was performed on the account level billing data provided via a detailed export from OLWSD's billing system. The following is a general description of the process completed to review the data. It should be noted that any potential anomalies identified can have legitimate explanations or be a direct result of the data export process.

1. Count of Accounts per Bill Cycle – A review of the total number of records for each month/bill cycle was conducted. This review provides insight into the completeness of the export as well as identifies any potential issues related to missed billing of existing customers.
2. Verification of Exclusion of Non-Potable Volumes – A utility's billing software is often used to store and bill volumes other than the potable volumes used in the water audit. These volumes are often designated through a rate schedule, customer classification or other identifier. In this review, any unique identifiers presented in the raw data were used to confirm that only potable volumes were used in the water audit.
3. Duplicate Records – Prior to review of the exported account level data, a check for duplicate records is performed. Often, the export will contain duplicate records where volumes are duplicated in multiple rows of data.
4. Negative Consumption – Negative consumption within the database can be indicative of a data archival issue. Many billing software packages maintain a separate database that stores the original, uncorrected readings and usage from the adjusted database where adjustments and corrections are archived. Other negative consumptions are legitimate as a utility may use to correct an incorrect reading or overestimate in a previous period.
5. Monthly Consumption Outliers (High/Low) – A review of each account's monthly consumption pattern was conducted and outliers were flagged. Many outliers are legitimate, but should be examined by the utility. Higher consumption is to be expected in the summer months and thus the filters used to determine high volume outliers are less restrictive during those time periods.
6. Active Accounts with Zero Consumption for the Audit Period – An account in the database that is active, but has zero consumption for the entire audit period could be indicative of a meter issue or an account that is not active.
7. Consecutive Months of Zero Consumption – Like active accounts with zero consumption, this review identifies accounts with multiple, consecutive months with zero consumption which could be indicative of a meter or data handling issue on the account.
8. Verification of the Summary Volume – Most utilities utilize a summary report to record and track volumes monthly. For this review, the account level raw data is summed to compare to the summary report volumes to assure the summary report is sufficient for monthly tracking. Additionally, a lag time adjustment was conducted. This adjustment was performed by subtracting volume from the beginning of the audit period and adding volumes to the end of the audit period, based on proration of volumes from read dates.
9. Difference in "Service Code" and "Device Size" – Oak Lodge's service (rate) codes are set-up based on meter size, so a comparison of the assigned device size and the service code was conducted to assure meters were assigned the correct rate.

10. Length of Bill Cycle – Using the current read date and previous read date, account information was reviewed for billing cycles different than the expect 30 days for monthly accounts and 60 days for bi-monthly accounts.
11. Consumption calculation vs. Consumption – Using the actual meter readings, a comparison of the calculated consumption compared to the billed consumption was conducted to assure all bills were calculated correctly by the billing software.

Data Integrity Review Outcomes

Note: Data as initially received included a separate row of data for each consumption month (i.e. generally, 12 rows for monthly accounts during the audit period). A pivot table was utilized to create a column-based reporting of consumption (i.e. 1 line of data per account). The total number of “reads” examined was 95,498 which included a period from Oct. 2017 to Sept. 2019. For the bi-monthly accounts, the blank months were removed to compress the data points for analysis.

Data Integrity Checkpoint	Pass/Flag	Finding & impact on BMAC / Recommended action (if any)
Count of bills per billing cycle	Pass	A total of 9,603 unique Account IDs were contained in the database. This is greater than the total number of service connections listed in the audit (8,591), which would be expected since the Account IDs change as customers move in and out.
Verification of non-potable exclusion	Pass	The analyzed query was determined to not include any sanitary sewer volumes, although previous iterations did include these volumes.
Record duplicates	Flag	A total of 8,457 duplicate rows of data were found and removed from the database file prior to the analysis.
Negative consumption	Flag	There were a total of 145 negative entries discovered in the database. After review with staff, most were either a meter rollover or a mis-read.
High/Low volume outliers	Pass	In review of the billing cycle consumption patterns, a total of 1,024 (1.1%) low volume and 368 (0.4%) high volume outliers were found. These represent a very small percentage of the total records and are deemed to be representative. Accounts showing pattern of increased consumption in the summer months were assumed to be irrigation related and not flagged. Several of the major outliers were reviewed with Staff and most determined to be legitimate volumes (customer leaks, meter replacements, etc.). Several of the outliers represented corrections in multipliers, both up and down. Staff reported numerous issues with these despite intentional efforts to correct.
Active Accounts with Zero Consumption for the Audit Period	Flag/Pass	Out of the 95,498 total reads, there was only a single entry with zero consumption. After reviewing with staff, this was deemed to be likely a data export error. A revised export (with less fields) contained 6,264 zero entries.
Consecutive Months of Zero Consumption	Pass	There were 241 accounts included that were logged as zero consumption total for the period reviewed (REVISED DATABASE).

Raw data total v summary data total		<p>The summary volume reported was 922.371 MG. A summation of the accounts included in the original analyzed database was 981.614 MG, or a 6.4% difference. This is well outside of expected tolerances so additional exports were attempted. A simple export that included only account ID, read date and consumption produced a summation volume of 919.017 (0.36% difference) which was deemed to be within tolerances.</p> <p>The lag time adjustment resulted in a reduction in the volume of 25.216 MG.</p> <table border="1"> <tr> <td>-36,474 ccf</td> <td>Volume to subtract (shown as consumption month January/February 2018, consumption partially occurred in 2017)</td> </tr> <tr> <td>70,185 ccf</td> <td>Volume to add (shown as consumption month January/February 2019, consumption partially occurred in 2018)</td> </tr> <tr> <td>33,709 ccf</td> <td>Net adjustment (ccf)</td> </tr> <tr> <td>25.216</td> <td>MG</td> </tr> </table> <p>NOTE: Lag-time adjustment was performed on the original database.</p>	-36,474 ccf	Volume to subtract (shown as consumption month January/February 2018, consumption partially occurred in 2017)	70,185 ccf	Volume to add (shown as consumption month January/February 2019, consumption partially occurred in 2018)	33,709 ccf	Net adjustment (ccf)	25.216	MG
-36,474 ccf	Volume to subtract (shown as consumption month January/February 2018, consumption partially occurred in 2017)									
70,185 ccf	Volume to add (shown as consumption month January/February 2019, consumption partially occurred in 2018)									
33,709 ccf	Net adjustment (ccf)									
25.216	MG									
Difference in "Service Code" and "Device Size"	Pass	There were approximately 75 accounts where the service code and device size were not consistent. However, almost all of these the device size was 5/8". Staff communicated that the billing software defaults to this size.								
Length of Bill Cycle	Flag	There were 4,930 entries with a bill cycle greater than 90 days. A number of these were related to the billing software changeover in early 2018, but not all. The longest entry was over 8 years old, but only a consumption of 12 units.								
Consumption calculation vs. Consumption	Flag	There were 4,063 entries where the subtraction of read date from previous read date was difference than the consumption entry. In review with staff, most of these were reported as mis-reads or meter rollovers.								

Customer Account	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
22345			284	9	14	17	14	15		35				2							390
23173	1	1	2				1617	11	16		1	5	22	25	4			142	240	17	2104
22555		68	61	59	71	55	53	1778	16	80	69	70	65	86	66	60	78	57	72	81	2945
22561	8	20	15	10	13	14	15	24	17	14	14	17	39	186	7	10	8	8	10	7	456
22574	3	5	4	4	5	4	52	157	4	3	4	3	4	3	4	3	82	666	4	3	1017

Customer Account	Read 1	Read 2	Read 3	Read 4	Read 5	Read 6	Read 7	Read 8	Read 9	Read 10	Read 11	Total
15835	3	5	6	3	3	5	4	3	582	6		620
15172	1	1	6	20	3	2	1	2	4	3		43
15308	2	3	4	2	3	2	2	102	6	3		129
20745	8	14	99	6	4	4	5	5	4	4		153
19884	4	3	4	4	3	2	3	125	4	4		156
17942	3	3	3	7	15	103	5	2	4	5		150

Figure 17 – Examples of High Consumption

Customer Account	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
22381	26	37	35	35	57	53	87	99	36	31	33	350	388	319	322	408	782	571	869	503	5041
22259	29	28	34	36	61	59	64	68	45	37	34	39	176	505	380	422	508	460	690	400	4075
22448			4	3	3	1	2	2	2	2	1	70	201	113	93	79	107	74	97	74	928
22812	11	19	16	16	24	20	24	29	22	19	19	193	202	225	208	232	280	222	278	192	2251
22804	11	16	14	14	24	16	17	28	26	26	35	319	608	456	78	67	87	83	106	75	2106

Customer Account	Read 1	Read 2	Read 3	Read 4	Read 5	Read 6	Read 7	Read 8	Read 9	Read 10	Read 11	Total
22790	15	7	8	7	7.34	7.11	7.37	6.39	6.73	5.77	0.29	78
14338	8	19.32	109.32	54.02	14.69	8.47	7.84	19	0.02	78	39	357.68
21865	26	14	41	55	44	17	15	19	44	2	54	331
15435	28	33	84	109	38	19	22	34	72	1	73	513

Figure 18 – Examples of Low Consumption

The apparent losses, system data and cost data were also assigned confidence limits based on staff interviews and review of available data.

Component (input, output)	%	Volume MG/Yr	95% Confidence Limits	Std. Deviation	Variance	Input Ranking for Improvement
Unbilled metered (Mg/Yr)		0.202	3.0%	0.0	0.00	27
Unbilled Unmetered (Mg/Yr)		2.860	25.0%	0.4	0.13	13
Unbilled Authorized Consumption		3.062	23.4%	0.4	0.13	
Water Losses (MG/Yr)		193.317	13.4%	13.0	168.06	
Unauthorized Consumption (MG/Yr)		2.860	25.0%	0.4	0.13	12
Customer Metering Inaccuracies (MG/Yr) Small (Old) +/-	-6.00%	21.093	10.0%	1.1	1.11	7
Customer Metering Inaccuracies (MG/Yr) Small (New) +/-	-1.00%	3.350	10.0%	0.2	0.03	16
Customer Metering Inaccuracies (MG/Yr) Large +/-	-3.00%	8.784	10.0%	0.4	0.19	10
Systematic Data Handling Errors (MG/Yr)		2.369	25.0%	0.3	0.09	14
Apparent Losses (MG/Yr)		38.456	6.5%	1.2	1.55	
Current Annual Real Losses (MG/Yr)		154.861	16.8%	13.0	169.61	
Infrastructure						
Service connections		8,591	1%	43.0	1845	33
Length of Mains (miles)		110.5	1%	0.6	0.31	33
Average Operating Pressure (PSI)		86.0	2%	0.9	0.74	33
UARL (MG/Yr)		59.216	2.4%			
Cost Information						
Variable Production Cost (\$/MG)		\$ 921.65	2%	9.2	85	33
Retail Unit Cost (\$/1000 gal)		\$ 2.33	2%	0.0	0	33

Figure 19 – Unbilled, Authorized Consumption/Apparent Losses/System Data/Cost Data

Performance Metrics/Ranges:

Based on the confidence limits for each of the inputs, the calculated performance metrics can also be calculated with an associated confidence interval. The figure below displays the associated ranges based on the selected audit period.

Performance Indicators and 95% confidence intervals				
Volume Component	Best estimate	95% Conf. Int.	Lower Range	Upper Range
Non-Revenue Water (gal/conn/yr)	22,859	16.3%	19,129	26,589
Unbilled Consumption (gal/conn/day)	1.0	23.4%	0.7	1.2
Apparent Loss (gal/conn/day)	12.3	6.5%	11.5	13.1
Real Loss (gal/conn/day)	49	16.8%	41	58
Total Water Loss (MGD)	0.5	13.4%	0.5	0.6
Infrastructure Leakage Index	2.6	17.0%	2.2	3.1
Value Component	Best estimate	95% Conf. Int.	Lower Range	Upper Range
Real Loss Value (annual \$)	\$ 142,728	16.9%	\$ 118,552	\$ 166,903
Apparent Loss Value (annual \$)	\$ 89,747	6.8%	\$ 83,667	\$ 95,827
Unbilled Value (annual \$)	\$ 2,822	23.4%	\$ 2,161	\$ 3,483
NRW Value (annual \$)	\$ 235,297	10.6%	\$ 210,360	\$ 260,233
NRW Value (\$/conn/yr)	\$ 27	10.6%	\$ 24	\$ 30

Figure 20 – Performance Indicators with Associated Lower/Upper Range

The overall performance indicators can be evaluated to determine if the performance range is acceptable for continued program direction.

Additionally, the specific inputs can be ranked by variance to determine which inputs are having the greatest impact on the overall confidence in the performance measures. The Top 10 ranked variances for this audit period are shown in the figure below.

Input Component Ranking for Output Improvement	Volume MG/Yr	Variance	Rank
24"	786.51	139.18	1
5/8" Inside Water	603.63	81.98	2
16"	357.46	28.75	3
2" Inside	84.26	1.60	4
Lagtime Adjustment/Billing Adjustment	25.22	1.59	5
1-1/2" Inside	83.68	1.58	6
Customer Metering Inaccuracies (MG/Yr) Small (Old) +/-	21.09	1.11	7
1" Inside	43.71	0.43	8
6" Inside	42.85	0.41	9
Customer Metering Inaccuracies (MG/Yr) Large +/-	8.78	0.19	10

Figure 21 – Top 10 Ranked Water Balance Inputs by Variance

While the base methodology used in the two approaches is consistent, there are some differences in approach that result in discrepancies in the resultant performance indicators. There is value in continuing to utilize both analysis techniques and apply them appropriately as future program advancements are made.

Apparent Loss Component Analysis

For the OLWSD system, Unauthorized Consumption and Systematic Data Handling Errors were estimated utilizing the default values supplied by the water audit software. Customer Metering Inaccuracies are largely rudimentary estimates except for the testing discussed earlier in this report.

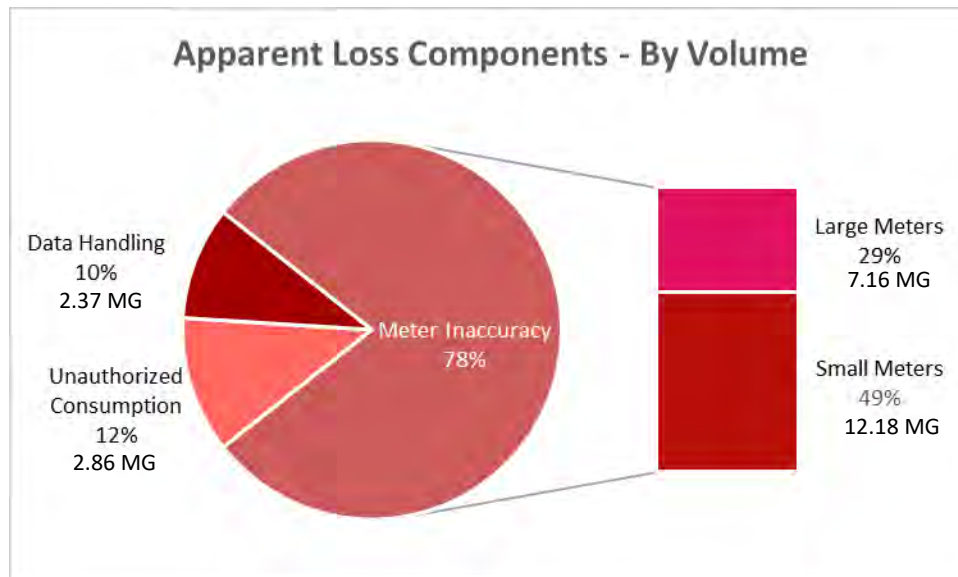


Figure 22 – Apparent Loss Component Analysis Breakdown

Real Loss Component Analysis

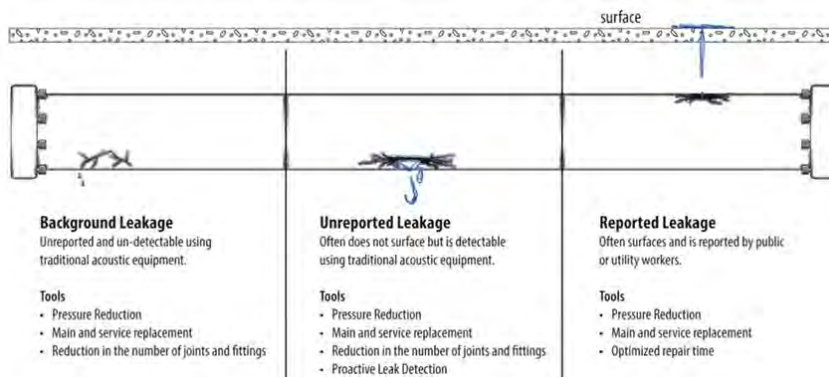


Figure 23 –Sub-Components of Real Loss (graphic credit WRF)

A bottom-up review of the OLWSD system real losses was conducted utilizing a real loss component analysis. This process attempts to quantify the total real losses by summing each of the three sub-components together. As a part of ongoing practices, all reported breaks and leaks are tracked a work order system and used in this analysis.

The results of this component analysis are included below.

REAL LOSS COMPONENT ANALYSIS RESULTS				
System Component	Background Leakage	Reported Failures	Unreported Failures	Total
	(MG)	(MG)	(MG)	(MG)
Reservoirs	0.74	-	-	0.74
Mains and Appurtenances	12.13	3.91	-	16.04
Service Connections	36.83	0.10	-	36.92
Total Annual Real Loss	49.69	4.00	-	53.70
Real Losses as Calculated by Water Audit				154.73
Hidden Losses/Unreported Leakage Currently Running Undetected				101.03

Figure 24 –Real Loss Component Analysis Summary Table

There were no unreported losses shown in the analysis because active leak detection results were not provided.

The difference in real losses calculated by the top-down water audit and the bottom up analysis was indicated as potentially recoverable unreported leakage. This is a broad analysis for the overall system. Because water systems have different infrastructure characteristics (age, material type, condition), it would be more advantageous to perform the component analysis for segments of the system rather than just the overall system. This would allow for more focused, effective analysis and intervention.

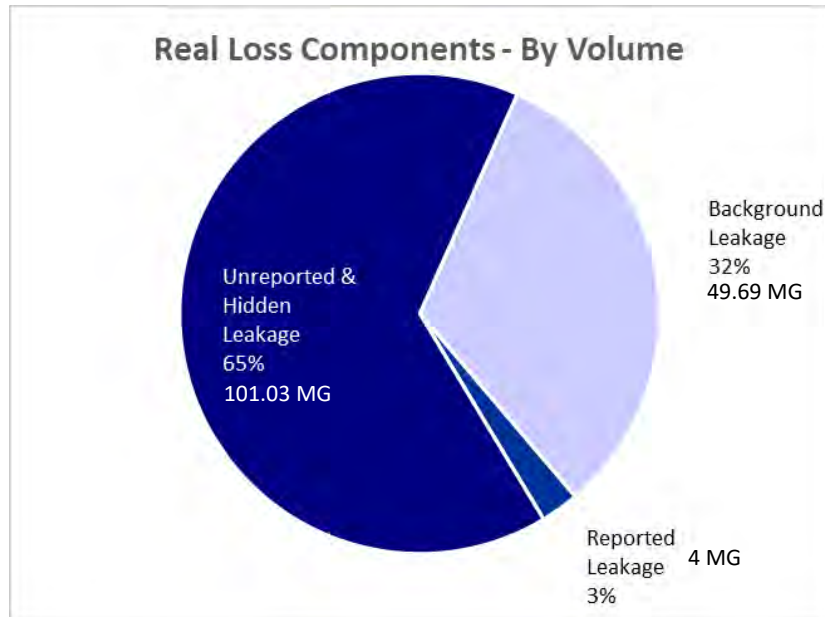


Figure 25 –Real Loss Components – By Volume

Upon completion of the breakdown of the NRW Components, a summary of the volumes and values of the NRW subcomponents is as follows.

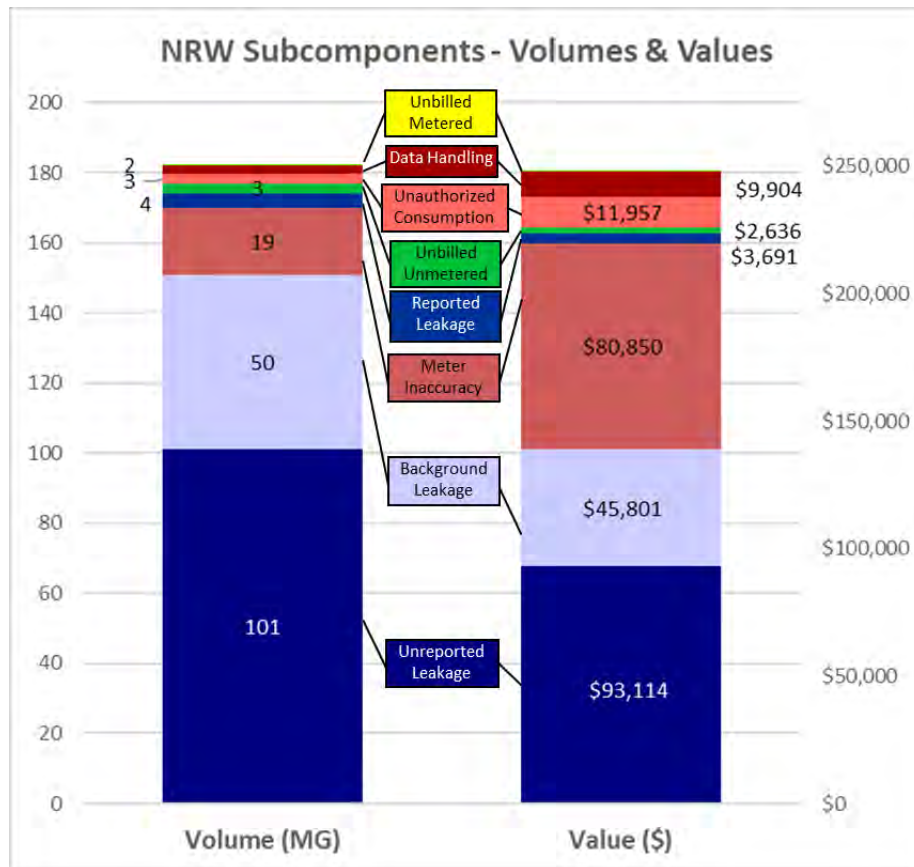


Figure 26 – NRW Subcomponents – By Volume & Value

Recommendations for Non-Revenue Water Management Program Improvements

The Oak Lodge Water Services District has been proactive in their approach and investment in managing Non-Revenue Water. Their efforts to make improvements towards an optimized system should be commended. Based on our interaction with staff through the preparation of this analysis, a focus on water loss is becoming adopted in to the culture of the organization.

To continue this progress towards optimization, the following actions are recommended:

Improvement in Billing Data Reliability

As evident in the discussion about the advanced validation of the billing data, there is currently a lower reliability in the billing data. OLWSD staff has conducted a thorough review of the anomalies identified and offered that many of them were the direct result of the meter replacement project. As meters are replaced, standard protocol should be to remove the meter from the old route and to add it to a new radio read route. If this doesn't happen, the meter is not read, thus not billed. Additionally, some accounts were suspended or inactive in the old billing software and the meter information didn't come into the new software as a result.

We would recommend a meter field evaluation, whereby staff resources would visit each meter site and verify that the information currently assigned in the billing software is correct. This should include verification of meter serial number, meter brand/type, meter size and read units/multiplier. Additionally,

while at each meter any general maintenance items (lid broken, etc.) can be noted and a location (GPS point) collected. The evaluation should be field driven, meaning staff should go structure by structure and confirm the information from the billing software which will allow for the discovery of any existing connections that are not currently in the database.

Other items related to the billing software for improvement include:

- Establishing a separate rate code for internal facility accounts to allow for separation as Unbilled, Metered Authorized Consumption;
- Evaluating policies on the handling of non-payment customers;
- Evaluating policies relative to bill cycle auditing including discovery of mis-reads, meter rollover, high/low/zero exceptions, largest revenue account verification, etc.

Establishment of Economic Targets

Currently, there are no economic based tangible goals for the water loss levels within the utility other than to maintain compliance with State rules, regulations and legislation and to generally reduce losses. Economic based performance targets should be established with a comprehensive, prioritized plan to reach those targets. This can be accomplished through several steps. First, utilizing the completed Real Loss Component Analysis, the leakage that is recoverable has been established. The next step is to determine what portion of that leakage makes financial sense to recover. Therefore, a detailed evaluation of the true cost of leakage in the OLWSD system is recommended. Currently, most of the cost is related to the primary costs of replacing the water that escapes the system. In our experience, leakage costs a system much more than just replacing the water. All secondary costs should be identified and quantified to provide the appropriate “cost” leakage in the OLWSD system carries.

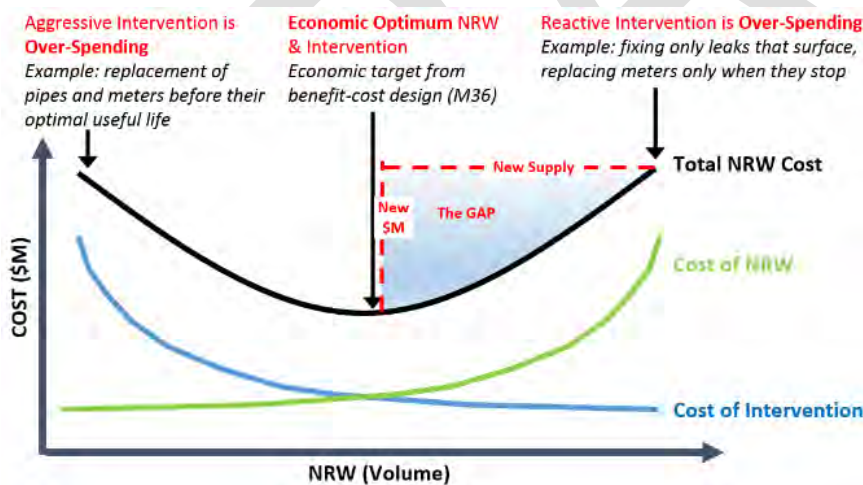


Figure 27 – Economic Optimum NRW

After these steps, a detailed economic analysis should be completed. From there, economic based targets for each component can be established and summarized to provide an overall system goal. These targets would be a suite of performance indicators rather than a single metric and include best management policy and practices as well.

Development of a Comprehensive Non-Revenue Water Management Program

Armed with the validated baseline and economic based targets, the next step would be to develop a comprehensive NRW Management Program. This would identify specific intervention strategies and schedule, tailored to OLWSD’s operational and capital budgeting and resource allocation.

One important aspect of a comprehensive program is the development of an internal Water Loss Control Committee. This group would be tasked with regular meetings to discuss the data collected each month, progress toward goals and the implementation of specific initiatives. The group should include cross-functional representation from across the utility and be used for internal and external communication relative to water loss. In our experience, this active, working group is essential to further develop the water loss culture across the organization. Through this project, monthly meetings have been conducted in the form of this type of meeting as an example for OLWSD to continue.

Through this project, a data tracker has been established. This should be updated monthly and utilized in preparation of continued annual auditing. Other practices, such as the supply meter testing program, should be continued to assure appropriate confidence in the supply volume is maintained and improved.

OLWSD should develop a customer meter testing with a primary focus on large meters. The large meter testing program be developed with meter testing frequencies based on revenue. This will provide a consistent evaluation of the system's largest customers and provide maximum revenue protection.

Additionally, flow profiling should be an integral part of the evaluation of the meter test results. Calculating the composite meter accuracy should be directly dependent on the flow rates the meter typically measures. A meter test that potentially "fails" at a low flow rate may not warrant repair or replacement if the customer never uses water at the low flow rate. One final aspect of the optimized large meter testing program is the decision matrix associated with evaluation of the results. Again, with flow profile results included, the potential lost revenue should be the driver for repair/replacement. Simply said, many of the highest revenue meters could provide a reasonable rate of return for repair/replacement at a meter accuracy that AWWA standards would deem to "pass", while lower revenue meters could potentially "fail" and not be candidates for repair/replacement.

For small meters, a testing program should also be developed. Meters should be tested at various volumes (throughput) and age. The results of this program can help inform an optimized replacement strategy for these meters. Again, flow profiling (random sampling) should be included in this evaluation. Given the new age of most of this meter population, the small meter testing program can be developed over time.

Leakage Management

If the economic analysis determines that there is a business case to reduce leakage, a strategy for recovery can be developed. Included in this evaluation should be the review of creating District Metered Areas (DMAs) within the system. With DMAs, leaks can be detected days after they develop through continuous monitoring of Minimum Night Flows. In this process, the impacts of consumption can be minimized as flows are evaluated in the middle of the night at minimal consumption periods. After a baseline is established, any deviation from the minimum night flow can then be investigated. DMAs, while effective, can be capital intensive to establish especially at the size needed to provide maximum effectiveness. It is recommended to begin with a pilot area to set up as a DMA to establish the appropriate data measurement & analysis protocols. From that point, a master plan can be established such that the capital impacts are spread over a larger period, closely matching the potential return from leakage reduction.

District Metered Area design is very system specific, but general guidance recommends that for maximum effectiveness, the areas should encompass less than 3,000 service connections. They can be designed as discrete, permanent zones or operated as “virtual” with multiple supply points metered. Other options include temporary zones where zonal valves are closed during a recurring evaluation period during late night hours. The use of step testing can also assist in the “narrowing” down of the possible leak location. These efforts can be very labor and/or capital intensive, thus should only be implemented with a positive business case clearly exhibited.

In time, pressure optimization should be evaluated and piloted. The advantage of pressure optimization is that it can reduce all three components of leakage when most other intervention methods only target one component. Investment in pressure optimization should be engaged after other intervention methods have been installed to substantially reduce leakage levels.

DRAFT

Attachments:

- 2018 Water Audit (M36 Format) with Performance Indicators & Water Balance
- Level 1 Validation Documentation
- Customer Meter Testing Results
- AWWA Best Practice Narrative

DRAFT

Attachments

DRAFT



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0
American Water Works Association
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?	Click to access definition
+	Click to add a comment

Water Audit Report for: **Oak Lodge Water Services**
 Reporting Year: **2018** 1/2018 - 12/2018

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

----- Enter grading in column 'E' and 'J' ----->

WATER SUPPLIED

Volume from own sources:	+	?	n/a	0.000	MG/Yr
Water imported:	+	?	3	1,143.965	MG/Yr
Water exported:	+	?	n/a	0.000	MG/Yr

Master Meter and Supply Error Adjustments

Pcnt:	+	?	7	0.00%	MG/Yr
Value:	+	?			MG/Yr

Enter negative % or value for under-registration
 Enter positive % or value for over-registration

WATER SUPPLIED: 1,143.965 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	+	?	3	947.587	MG/Yr
Billed unmetered:	+	?	n/a	0.000	MG/Yr
Unbilled metered:	+	?	8	0.202	MG/Yr
Unbilled unmetered:	+	?	5	2.860	MG/Yr

AUTHORIZED CONSUMPTION: 950.649 MG/Yr

Click here: ?
for help using option buttons below

Pcnt:	+	?	0	2.860	MG/Yr
-------	---	---	---	-------	-------

Use buttons to select percentage of water supplied

OR
value

Pcnt:	+	?	0.25%		MG/Yr
-------	---	---	-------	--	-------

Value:	+	?	3.40%		MG/Yr
Value:	+	?	0.25%		MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

193.316 MG/Yr

Apparent Losses

Unauthorized consumption: 2.860 MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+	?	3	33.359	MG/Yr
Systematic data handling errors:	+	?		2.369	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 38.588 MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 154.729 MG/Yr

WATER LOSSES: 193.316 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 196.378 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+	?	9	110.5	miles
Number of <u>active</u> AND <u>inactive</u> service connections:	+	?	9	8,591	
Service connection density:	+	?		78	conn./mile main

Are customer meters typically located at the curbside or property line? Yes

Average length of customer service line: + ? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: + ? 5 86.0 psi

COST DATA

Total annual cost of operating water system:	+	?	10	\$3,421,600	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+	?	9	\$3.12	\$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	+	?	5	\$921.65	\$/Million gallons = Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 50 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Water imported

2: Billed metered

3: Customer metering inaccuracies



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.
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Water Audit Report for: **Oak Lodge Water Services**
Reporting Year: **2018** | **1/2018 - 12/2018**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 50 out of 100 *****

System Attributes:

Apparent Losses:	38.588	MG/Yr
+	Real Losses:	154.729
=	Water Losses:	193.316
		MG/Yr

? Unavoidable Annual Real Losses (UARL): 59.21 MG/Yr

Annual cost of Apparent Losses: \$160,944

Annual cost of Real Losses: \$142,606

Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial:	{	Non-revenue water as percent by volume of Water Supplied:	17.2%	
		Non-revenue water as percent by cost of operating system:	9.0%	Real Losses valued at Variable Production Cost

Operational Efficiency:	{	Apparent Losses per service connection per day:	12.31	gallons/connection/day
		Real Losses per service connection per day:	49.34	gallons/connection/day
		Real Losses per length of main per day*:	N/A	
		Real Losses per service connection per day per psi pressure:	0.57	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 154.73 million gallons/year

? Infrastructure Leakage Index (ILI) [CARL/UARL]: 2.61

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline

AWWA Free Water Audit Software: Water Balance

WAS v5.0

American Water Works Association.

Water Audit Report for:	Oak Lodge Water Services	
Reporting Year:	2018	1/2018 - 12/2018
Data Validity Score:	50	

		Water Exported <i>0.000</i>	Billed Water Exported			Revenue Water 0.000
			Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption (water exported is removed)	Revenue Water
Own Sources (Adjusted for known errors)	0.000	Water Supplied 1,143.965	950.649	947.587	947.587	947.587
				Unbilled Authorized Consumption	0.000	
	1,143.965		3.062	Unbilled Metered Consumption	0.202	Non-Revenue Water (NRW) 196.378
			Apparent Losses	2.860	2.860	
			Water Losses	33.359	33.359	
			193.316	2.369	2.369	
Water Imported	1,143.965		Real Losses	154.729	154.729	
				Leakage on Transmission and/or Distribution Mains <i>Not broken down</i>		
				Leakage and Overflows at Utility's Storage Tanks <i>Not broken down</i>		
				Leakage on Service Connections <i>Not broken down</i>		

Level 1 Validation Review Call Document

Audit Information:

Utility: Oak Lodge Water Services

PWS ID:

Audit Period: CY2018

Utility Representation: Sara Jo Chaplain, Todd Knapp, Brad Lyon, Kelly Stacy, Elaine Murray and other staff

Validation Call Date: December 2019 Sufficient Supporting Documents Provided: Yes

Key Audit Metrics:

Data Validity Score: 50

Data Validity Band (Level): Band II (26-50)

ILI: 2.61

Real Loss: 49.34 (gal/conn/day)

Apparent Loss: 12.31 (gal/conn/day)

Certification Statement by Validator:

This water loss audit report has been Level 1 validated per WRF 4639 Methodology.

Water Audit Validator: Tory Wagoner

Validator Provided

#	AWWA Water Audit Input	Code	Final DVG	Basis on Input Derivation	Basis on Data Validity Grade
1	Volume from Own Sources	VOS	n/a		
2	VOS Master Meter & Supply Error Adjustment	VOS MMSEA	n/a		
3	Water Imported	WI	3	<p>Import meter profile: Two supply meters (16" & 24") immediately downstream of two 5 MG storage tanks. Mag meters, connected to SCADA. The 16" is pumped and the 24" flows by gravity.</p> <p>WI input derived from: SCADA reads taken generally daily, but volumes from field reading taken monthly.</p> <p>Comments: Input derivation from supporting documents confirmed. Exclusion of non-potable volumes confirmed. Master meters are read via SCADA most days, but the reading captured on the 25th of each month is used for billing purposes.</p>	<p>Percent of import supply metered: 100%</p> <p>Signal calibration frequency: Has been done but not in last 5 years.</p> <p>Volumetric testing frequency: None.</p> <p>Volumetric testing method: n/a.</p> <p>Percent of import supply volumetrically tested: n/a.</p> <p>Comments: Drawdown testing conducted Dec. 2019</p>
4	WI Master Meter & Supply Error Adjustment	WI MMSEA	7	<p>Input derivation: Left blank in absence of available test data.</p> <p>Comments: No additional comments.</p>	<p>Import meter read frequency: Daily (via SCADA).</p> <p>Import meter read method: Manual and automatic logging.</p> <p>Frequency of data review for trends & anomalies: Monthly.</p> <p>Comments: Per Staff, SCADA often experiences "drift" of the readings and has to be reset when on-site. Manual readings are used and considered the most accurate.</p>
5	Water Exported	WE	n/a	<p>Export meter profile: Multiple interconnections with Gladstone (3 metered) and unmetered w/ CRW (valves supposed to be closed). Gladstone volumes included as BMAC.</p>	
6	WE Master Meter & Supply Error Adjustment	WE MMSEA	n/a		
7	Billed metered	BMAC	3	<p>Customer meter profile:</p> <p>Age profile: Varying ages prior to replacement</p> <p>Reading system: Mixture of Manual & AMR</p> <p>Read frequency: Bi-monthly for residential, monthly for "large" meters (1"+).</p>	<p>Percent of customers metered: 100%</p> <p>Small meter testing policy: None.</p> <p>Number of small meters tested/year: n/a</p> <p>Large meter testing policy: None.</p> <p>Number of large meters tested/year: n/a</p> <p>Meter replacement policy: Ongoing via meter conversion project (approximately 25% during the audit period)</p>

#	AWWA Water Audit Input	Code	Final DVG	Basis on Input Derivation	Basis on Data Validity Grade
				Comments: Lag-time correction is not employed in input derivation. Input derivation from supporting documents confirmed. Exclusion of non-potable volumes confirmed.	Number of replacements/year: ~2,000 during audit period Billing data auditing: Standard billing QC, plus review of volumes by use type each billing cycle. Financial auditor performs sampling review on select accounts each year. Comments: A small sample of 5/8" meters were tested in December 2019 as meters were removed by replacement contractor.
8	Billed unmetered	BUAC	n/a		
9	Unbilled metered	UMAC	8	Profile: Own facilities flow through billing software, but are mixed with non-payment accounts on a no bill rate code, thus included as billed metered consumption. Volume shown in audit from operational metered uses. Input derivation: Direct from meter readings. Comments: Input derivation from supporting documents confirmed. Recommend creating new rate code to assign OLWSD accounts to and include those volumes as UMAC.	Policy for billing exemptions: Limited to own facilities. Comments: No additional comments.
10	Unbilled unmetered	UUAC	5	Profile: Operational and fire department usage. Comments: Some data was provided from estimates, but not considered all-inclusive, so 0.25% of total water supplied was utilized.	Comments: Default grade applied.
11	Unauthorized consumption	UC	5	Comments: Default input applied.	Comments: Default grade applied.
12	Customer metering inaccuracies	CMI	3	See BMAC comments regarding meter testing & replacement activities. Input derivation: Calculated as weighted average from analysis of limited test data. Comments: Calculation utilized the limited test data for "replaced" meters present during the audit period, but accuracy for new and large meters was assumed.	Characterization of meter testing: Limited (upon request AND consumption flag only). Characterization of meter replacement: Ongoing (proactive), annual. Comments: No additional comments.
13	Systematic data handling errors	SDHE	5	Comments: Default input applied.	Comments: Default grade applied.
14	Length of mains	Lm	9	Input derivation: Totaled from GIS based map. Hydrant leads included: Yes. Comments: No additional comments.	Mapping format: Digital. Asset management database: In place and integrated with GIS system. Map updates & field validation: Accomplished through normal work order processes.

#	AWWA Water Audit Input	Code	Final DVG	Basis on Input Derivation	Basis on Data Validity Grade
					Comments: No additional comments.
15	Number of service connections	Ns	9	<p>Input derivation: Detailed query from GIS system to analyze unique record count.</p> <p>Basis for database query: Location or other premise-based ID.</p> <p>Comments: No additional comments.</p>	<p>CIS updates & field validation: Accomplished through normal meter reading processes.</p> <p>Estimated error of total count within: 1%.</p> <p>Comments: No additional comments.</p>
16	Ave length of cust. service line	Lp	10	<p>Comments: Default input and grade applied, as customer meters are typically located at the property boundary given climate.</p>	
17	Average operating pressure	AOP	5	<p>Number of zones, general profile: Two main zones, with one very small zone (View Acres)</p> <p>Typical pressure range: 40 to 95 psi</p> <p>Input derivation: Output from hydraulic model.</p> <p>Comments: No additional comments.</p>	<p>Extent of static pressure data collection: Not collected currently.</p> <p>Characterization of real-time pressure data collection: Basic - telemetry or pressure logging at boundary points (supply locations, tanks, PRVs, boosters).</p> <p>Hydraulic model: In place and calibrated within the last 5 years.</p> <p>Comments: No additional comments.</p>
18	Total annual operating cost	TAOC	10	<p>Input derivation: From official financial reports.</p> <p>Comments: Confirmed costs limited to water only, and water debt service included.</p>	<p>Frequency of internal auditing: Annually.</p> <p>Frequency of third-party CPA auditing: Annually.</p> <p>Comments: No additional comments.</p>
19	Customer retail unit cost	CRUC	9	<p>Input derivation: Total consumptive revenue divided by Billed Metered Authorized Consumption. Sewer charges are based on water meter readings (winter average). Sewer revenues are incorporated into calculation.</p> <p>Comments: No additional comments.</p>	<p>Characterization of calculation: Weighted average composite of all rates. Input calculations have been reviewed by an M36 water loss expert.</p> <p>Comments: No additional comments.</p>
20	Variable production cost	VPC	5	<p>Supply profile: Import supply only.</p> <p>Primary costs included: Purchase costs and supply & distribution power.</p> <p>Secondary costs included: None currently included.</p> <p>Comments: No additional comments.</p>	<p>Characterization of calculation: Primary costs only. Input calculations have been reviewed by an M36 water loss expert.</p> <p>Comments: No additional comments.</p>

Key Audit Metrics

(~)	VALIDITY	Data Validity Score: 50	Data Validity Band (Level): Band II (26-50)
(#)	VOLUME	ILI: 2.61	Real Loss: 49.34 (gal/conn/day) Apparent Loss: 12.31 (gal/conn/day)
(\$)	VALUE	Annual Cost of Apparent Losses: \$160,944	Annual Cost of Real Losses: \$142,606

Infrastructure & Water Loss Management Practices:

Infrastructure age profile: Varied age Infrastructure replacement policy (current, historic): Capital based
 Estimated main failures/year: ~12 - 15 Estimated service failures/year: ~5 - 10
 Extent of proactive leakage management: Proactive leak detection as resources are available (internal staff and equipment)
 Other water loss management comments: No additional comments.

Comments on Audit Metrics & Validity Improvements

The Infrastructure Leakage Index (ILI) of 2.61 describes a system that experiences leakage at 2.61 times the modeled technical minimum for its system characteristics.

The Data Validity Score falling within Band II (26-50) indicates that next steps should be generally focused on improving data reliability. Opportunities to improve the reliability of audit inputs and outputs include:

- Improved understanding of Supply Meter (Own or Import) Master Meter Error: consider adopting or increasing the rigor of a source meter volumetric testing and calibration program, informed by the guidance provided in AWWA Manual M36 – Appendix A.
- Improved estimation of CMI: consider a customer meter testing program which tests a sample of random meters whose stratification (by size, age, or other characteristics) represents the entire customer meter stock.
- Customized estimate of Unbilled Unmetered Authorized Consumption: consider producing itemized, agency-specific estimates of unbilled unmetered (operational) uses, rather than using the default. Ensure leakage estimates are excluded.
- Temporal alignment of Billed Metered Authorized Consumption with Water Supplied: consider pro-rating the first and last months of the audit period to better align consumption with actual dates of use, and using read date as basis for reporting.

Oak Lodge Meter Audit 12/9/2019

Brand	Model	Serial Number	Flow Rate	Initial Meter Reading	Final Meter Reading	Amount Recored	Test Amount	Accuracy
Neptune	SC	2659487	1/4 gpm	425876.6	425877.38	0.78 cf	1 CF	78.00%
			2 gpm	425877.38	425878.37	0.99 cf	1 CF	99.00%
			15 gpm	425878.37	425888.57	10.2 cf	10 CF	102.00%
Neptune	SC case gasket leak	9539926	1/4 gpm	267251.29	267252.07	0.78 cf	1 CF	78.00%
			2 gpm	267252.07	267252.93	0.86cf	1 CF	86.00%
			15 gpm	267252.93	267259.21	6.28	10 CF	62.80%
Neptune	SC drive spindle gasket leak	5911858	1/4 gpm	539852.12	539853.02	0.90 cf	1 CF	90.00%
			2 gpm	539853.02	539854.02	1.0 cf	1 CF	100.00%
			15 gpm	539854.02	539864.13	10.11 cf	10 CF	101.10%
Neptune	SC case gasket leak	12216236	1/4 gpm	695437.11	695437.58	0.47 cf	1 CF	47.00%
			2 gpm	695437.58	695438.34	0.76 cf	1 CF	76.00%
			15 gpm	695438.34	695447.83	9.49 cf	10 CF	94.90%
Neptune	TriSeal	9905948	1/4 gpm	40012.47	40012.47	0.0 cf	1 CF	0.00%
			2 gpm	40012.47	40012.54	0.07 cf	1 CF	0.07%
			15 gpm	40012.54	40022.51	9.97 cf	10 CF	99.70%
Neptune	TriSeal	17884264	1/4 gpm	87662.75	87663.61	0.86 cf	1 CF	86.00%
			2 gpm	87663.61	87663.61	0.0 cf	1 CF	0.00%
			15 gpm	87663.61	87673.55	9.94 cf	10 CF	99.40%
Neptune	TriSeal	20265658	1/4 gpm	22776.52	22776.52	0.0 cf	1 CF	0.00%
			2 gpm	22776.52	22777.42	0.9 cf	1 CF	90.00%
			15 gpm	22777.42	22787.67	10.25 cf	10 CF	102.50%
Neptune	T-10	23165379	1/4 gpm	142902.1	142903.01	0.91 cf	1 CF	91.00%
			2 gpm	142903.01	142904.01	1 cf	1 CF	100.00%
			15 gpm	142904.01	142914.05	10.04 cf	10 CF	100.40%
Neptune	T-10	46234375	1/4 gpm	113413.61	113414.6	0.99 cf	1 CF	99.00%
			2 gpm	113414.6	113415.61	1.01 cf	1 CF	101.00%
			15 gpm	113415.61	113425.59	9.98 cf	10 CF	99.80%
Neptune	T-10	44184391	1/4 gpm	101610.5	101611.49	0.99 cf	1 CF	99.00%
			2 gpm	101611.49	101612.495	1.005 cf	1 CF	100.50%
			15 gpm	101612.495	101622.475	9.98 cf	10 CF	99.80%
Neptune	T-10	43850024	1/4 gpm	341596.74	341597.735	0.995 cf	1 CF	99.50%
			2 gpm	341597.735	341598.725	0.99 cf	1 CF	99.00%
			15 gpm	341598.725	341608.72	9.995 cf	10 CF	99.95%
Neptune	T-10	39348455	1/4 gpm	163586.2	163587.185	0.985 cf	1 CF	98.50%
			2 gpm	163587.185	163588.18	0.995 cf	1 CF	99.50%
			15 gpm	163588.18	163598.22	10.04 cf	10 CF	100.40%
Neptune	T-10	43850071	1/4 gpm	203562.66	203563.62	0.96 cf	1 CF	96.00%
			2 gpm	203563.62	203564.625	1.005 cf	1 CF	100.50%
			15 gpm	203564.625	203574.63	10.005 cf	10 CF	100.05%
Neptune	T-10	41134529	1/4 gpm	130691.63	130692.6	0.97 cf	1 CF	97.00%
			2 gpm	130692.6	130693.595	0.995 cf	1 CF	99.50%
			15 gpm	130693.595	130703.56	9.965 cf	10 CF	99.65%
Neptune	T-10	37235812	1/4 gpm	228217.4	228218.37	0.97 cf	1 CF	97.00%
			2 gpm	228218.37	228219.365	0.995 cf	1 CF	99.50%
			15 gpm	228219.365	228229.37	10.005 cf	10 CF	100.05%
Sensus	SR11	71449478	1/4 gpm	73693.78	73694.699	0.919cf	1 CF	91.90%
			2 gpm	73694.699	73695.6965	0.9975 cf	1 CF	99.75%
			15 gpm	73695.6965	73701.32	5.6295 cf	10 CF	56.95%
Sensus	SR11	67278285	1/4 gpm	65507.144	65508.127	0.983 cf	1 CF	98.30%
			2 gpm	65508.127	65509.1405	1.0135 cf	1 CF	101.35%
			15 gpm	65509.1405	65519.172	10.0315	10 CF	100.32%

Sensus	SRII	89151772	1/4 gpm	18386.2225	18387.1925	0.97 cf	1 CF	97.00%
			2 gpm	18387.1925	18388.2015	1.009 cf	1 CF	100.90%
			15 gpm	18388.2015	18398.2	9.9985 cf	10 CF	99.99%
Sensus	SRII	61275304	1/4 gpm	101437.001	101437.9815	0.9805 cf	1 CF	98.05%
			2 gpm	101437.9815	101438.978	0.9965 cf	1 CF	99.65%
			15 gpm	101438.978	101448.9315	9.9535 cf	10 CF	99.54%
Sensus	SRII	67752971	1/4 gpm	260639.4575	260640.4295	0.972 cf	1 CF	97.20%
			2 gpm	260640.4295	260641.433	1.0035 cf	1 CF	100.35%
			15 gpm	260641.433	260651.4665	10.0335 cf	10 CF	100.34%
Sensus	iPearl	72918295	1/4 gpm	52344.761	52345.762	1.001 cf	1 CF	100.10%
			2 gpm	52345.762	52346.79	1.028 cf	1 CF	102.80%
			15 gpm	52346.79	52356.884	10.094 cf	10 CF	100.94%
Sensus	iPearl	7330338	1/4 gpm	89649.69	89650.689	0.999 cf	1 CF	99.90%
			2 gpm	89650.689	89651.698	1.009 cf	1 CF	100.00%
			15 gpm	89651.698	89661.846	10.148 cf	10 CF	101.48%
Rockwell	SR	21937415	1/4 gpm	69196.13	69196.13	0.0 cf	1 CF	0.00%
			2 gpm	69196.13	69197	0.87 cf	1 CF	87.00%
			15 gpm	69197	69206.51	9.51 cf	10 CF	95.10%
Rockwell	SR	34323633	1/4 gpm	79851.5	79852.29	0.79 cf	1 CF	79.00%
			2 gpm	79852.29	79853.3	1.01 cf	1 CF	101.00%
			15 gpm	79853.3	79863.27	9.97 cf	10 CF	99.70%
Rockwell	SR	34323584	1/4 gpm	76034.26	76034.77	0.51 cf	1 CF	51.00%
			2 gpm	76034.77	76035.75	0.98 cf	1 CF	98.00%
			15 gpm	76035.75	76045.37	9.62 cf	10 CF	92.20%
Rockwell	SR	21953438	1/4 gpm	26027.67	26027.67	0 cf	1 CF	0.00%
			2 gpm	26027.67	26028.63	0.96 cf	1 CF	96.00%
			15 gpm	26028.63	26038.46	9.83 cf	10 CF	98.30%
Rockwell	SR	33182923	1/4 gpm	72947	72947	0 cf	1 CF	0.00%
			2 gpm	72947	72947	0 cf	1 CF	0.00%
			15 gpm	72947	72947	0 cf	10 CF	0.00%
Neptune	T-10	32622970	1/4 gpm	352143.85	352144.8	0.95 cf	1 CF	95.00%
			2 gpm	352144.8	352145.79	0.99 cf	1 CF	99.00%
			15 gpm	352145.79	352155.85	10.06 cf	10 CF	100.60%
Neptune	T-10	37235766	1/4 gpm	386713.185	386714.175	0.99 cf	1 CF	99.00%
			2 gpm	386714.175	386715.18	1.005 cf	1 CF	100.50%
			15 gpm	386715.18	386725.23	10.05 cf	10 CF	100.50%
Neptune	TriSeal	17884015	1/4 gpm	82358.71	82359.54	0.83 cf	1 CF	83.00%
			2 gpm	82359.54	82360.52	0.98 cf	1 CF	98.00%
			15 gpm	82360.52	82370.42	9.9 cf	10 CF	99.00%
Neptune	TriSeal	17883914	1/4 gpm	69894.42	69895.32	0.9 cf	1 CF	90.00%
			2 gpm	69895.32	69896.31	0.99 cf	1 CF	99.00%
			15 gpm	69896.31	69906.26	9.95 cf	10 CF	99.5 cf%

	15%	70%	15%	
Serial #	1/4 gpm	2 gpm	15 gpm	Composite
2659487	78.00%	99.00%	102.00%	96.30%
5911858	90.00%	100.00%	101.10%	98.67%
7330338	99.90%	100.00%	101.48%	100.21%
9539926	78.00%	86.00%	62.80%	81.32%
9905948	0.00%	0.07%	99.70%	15.00%
12216236	47.00%	76.00%	94.90%	74.49%
17883914	90.00%	99.00%	99.50%	97.73%
17884015	83.00%	98.00%	99.00%	95.90%
17884264	86.00%	0.00%	99.40%	27.81%
20265658	0.00%	90.00%	102.50%	78.38%
21937415	0.00%	87.00%	95.10%	75.17%
21953438	0.00%	96.00%	98.30%	81.95%
23165379	91.00%	100.00%	100.40%	98.71%
32622970	95.00%	99.00%	100.60%	98.64%
33182923	0.00%	0.00%	0.00%	0.00%
34323584	51.00%	98.00%	92.20%	90.08%
34323633	79.00%	101.00%	99.70%	97.51%
37235766	99.00%	100.50%	100.50%	100.28%
37235812	97.00%	99.50%	100.05%	99.21%
39348455	98.50%	99.50%	100.40%	99.49%
41134529	97.00%	99.50%	99.65%	99.15%
43850024	99.50%	99.00%	99.95%	99.22%
43850071	96.00%	100.50%	100.05%	99.76%
44184391	99.00%	100.50%	99.80%	100.17%
46234375	99.00%	101.00%	99.80%	100.52%
61275304	98.05%	99.65%	99.54%	99.39%
67278285	98.30%	101.35%	100.32%	100.74%
67752971	97.20%	100.35%	100.34%	99.88%
71449478	91.90%	99.75%	56.95%	92.15%
72918295	100.10%	102.80%	100.94%	102.12%
89151772	97.00%	100.90%	99.99%	100.18%
Grand Total	75.34%	88.19%	93.77%	87.10%



American Water Works
Association

Dedicated to the World's Most Important Resource™

Best Practice in Water Loss Control: Improved Concepts for 21st Century Water Management

In 2003 the American Water Works Association (AWWA) adopted improved, best practice methods for defining and measuring water loss in water distribution systems. This transition into a new era of effective water management marked a departure from previous terms and practices no longer useful to the industry. The following provides explanation about this departure from obsolete practices, and articulates key messages and best practices in water loss control today.

Improved Terminology: Non-Revenue Water

In 2003 AWWA abandoned use of the term “unaccounted-for” water (UFW) because all volumes of water supplied within a distribution system go toward either beneficial consumption or wasteful loss. All water sent into the distribution system can be accounted for. Today, the industry best practice term favored by AWWA and its national Water Loss Control Committee when quantifying water loss is “non-revenue” water (NRW). **NRW is specifically defined to include the sum of specific types of water loss and authorized, unbilled consumption that occur within water distribution systems.**

Enhanced Performance Indicators to Measure Progress

While percentage indicators – typically the ratio of authorized customer consumption to distribution system input – still exist in the industry, AWWA discourages use of percentage indicators, such as the “unaccounted-for” water percentage. Using percentage indicators to assess water loss in distribution systems gives a misleading and unreliable measure of utility performance because a percentage indicator:

- Is greatly affected by changing levels of customer consumption
- Cannot distinguish among the specific components of non-revenue water occurring in a distribution system
- Reveals nothing about water volumes and associated costs (the two most important factors in assessing water waste within a distribution system)

Today the industry best practice method for water loss auditing created by the International Water Association (IWA) and AWWA now quantifies **several key performance indicators, which provide a vastly superior means for assessing water loss performance in distribution systems, while recognizing that contributing factors and potential corrective measures are specific to each water utility.**

The following table provides a guide for editors to ensure your publications contain the most up-to-date industry best practices and water loss control terminology.

Editorial Guide for Use of Up-to-Date Water Loss Control Terminology

Incorrect	Correct	Why
Unaccounted-for water (UFW)	Non-revenue water (NRW)	All water entering a distribution system can be defined as a component of either authorized consumption or water loss
% of system input volume to measure water loss performance	Suite of key performance indicators for water loss as outlined in IWA/AWWA audit method (As an example - gal/service connection/day)	A %-based expression obscures the underlying causes of water loss and impedes realistic solutions based on system specifics

It is important to understand that all water utility distribution systems incur leakage (real losses). Similarly, all water utilities fail to recover revenue from all of the water that is (or should be) billed to customers (apparent losses). While every system is unique, all water utilities should employ leakage control and revenue recovery programs that strive to keep losses contained to appropriate, economically justified levels. AWWA’s Manual: *Water Audits and Loss Control Programs (M36)* and the [AWWA FREE Water Audit Software](#) provides a robust pathway for utilities in developing a data-driven program for cost-effectively managing all water loss components (apparent and real) in distribution systems, as shown below in the IWA/AWWA Water Balance.

The IWA/AWWA Water Balance

Volume from Own Sources (corrected for known errors)	System Input Volume	Water Exported (corrected for known errors)	Billed Water Exported			Revenue Water	
		Water Supplied	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption		Revenue Water
Water Imported (corrected for known errors)					Water Losses	Apparent Losses	Unbilled Authorized Consumption
		Unbilled Unmetered Consumption	Unbilled Unmetered Consumption				
		Real Losses	Customer Metering Inaccuracies			Leakage on Transmission and Distribution Mains	
			Unauthorized Consumption			Leakage and Overflows at Utility’s Storage Tanks	
			Systematic Data Handling Errors			Leakage on Service Connections up to the point of Customer Metering	

NOTE: All data in volume for the period of reference, typically one year.

OAK LODGE
WATER SERVICES
STAFF REPORT

To: Board of Directors
From: Sarah Jo Chaplen, General Manager
Agenda Item: 2018/2019 Financial Statements as audited by Moss Adams, LLP
Item No.: 10
Date: January 13, 2020 for January 21, 2020 Meeting

Action Requested

Accept the Financial Statements as audited by Moss Adams, LLP and review management recommendations resulting from that audit.

History

April, 2019 Moss Adams, LLP was selected as OLWS new financial auditor of record.

May 21, 2019 Keith Simovic, CPA, Senior Manager and Julie Desimone, CPA, Partner met with the Board to begin the OLWS working relationship. Board signaled a desire for an in-person presentation prior to any submittal of the audited OLWS financial statements to the Secretary of State.

Background

Moss Adams, LLP has audited the financial statements and records of OLWS for 2018/2019. Typically, the financial statements would be submitted to the Secretary of State's Office by December 31st. This year an extension was requested and received, allowing OLWS until January 31, 2020 to submit our statements. Moss Adams, LLP is presenting the final results of their financial audit to the Board prior to submittal. The report will also include a letter to the OLWS' Management Team outlining recommendations for process improvements. This is the Board's opportunity to ask questions regarding the auditor's recommendations.

OLWS has been given a "clean opinion" on the financial statements as a result of the audit, along with a list of suggested changes to OLWS financial and operations processes.

The General Manager and District staff will work with Moss Adams after the financial statements have been submitted to finalize the details of their recommendations and set

the prioritization and pacing of implementation. Moss Adams, LLP has already indicated that not all of the recommendations can be fully implemented prior to the beginning of the next audit cycle, which will begin in late spring.

Workload Impacts

As work plans are developed the General Manager will return to the Board with more detailed updates.

Suggested Board Motion

I move to accept the District's financial statements as audited by Moss Adams, LLP, and direct the General Manager to coordinate appropriate responses to the audit recommendations provided.

Attachments

1. 2018/2019 OLWS audited Financial Statements

OAK LODGE
WATER SERVICES
AGENDA ITEM

To: Board of Directors
From: Sarah Jo Chaplen, General Manager
Agenda Item: 2018/2019 Financial Statements as audited by Moss Adams, LLP
Item No.: 10a
Date: January 21, 2020

Background:

Placeholder until actual audit report arrives from Moss Adams.



STAFF REPORT

To: Board of Directors
From: Aleah Binkowski, Human Resources Manager
Agenda Item: Monthly Report
Item No.: 11a
Date: January 21, 2020

Staffing Changes and Updates

This past month has seen many staffing changes. First off, I want to welcome Laurel Casey, our new District Recorder who started with the District last week. We are very lucky to have found a Recorder with her skills, background and passion for records management.

We also have had several sad goodbyes over the past month. Besides the departure of our friend and colleague Finance Director Kelly Stacey, our long time Wastewater Treatment Plant Operator, Randy Leniger decided to retire on 12/31/2019 after over 20 years of service to the District. Staff member Heather Standing, who holds the position of Admin Specialist III and handles all our account payables will be leaving on February 14th as she has accepted full time work in an area she has been passionate about for years. Finally, I want to mention that a staff member at one of our partner agencies, Dave Davis, the Treatment Plant Supervisor at the North Clackamas County Water Commission has also decided to retire.

We will be working to fill these positions, but we will also be taking the time to ensure we hire the right people and will be looking at the job descriptions vs. current work arrangements to streamline work and ensure everyone's work portfolio is right sized and appropriate for the position. I am currently working with the Temp Agency Robert Half to secure help for the Finance Department during this transition time. They specialize in finance and account temps and will be meeting with us this week to go over candidates to start working with Heather next week for AP training.

OAK LODGE
WATER SERVICES
STAFF REPORT

To: Board of Directors
From: Sarah Jo Chaplen, General Manger
Agenda Item: Finance Department Report
Item No.: 11b
Date: January 14, for January 21, 2020 Meeting

Departmental Update

Kelly Stacey and her team worked hard in December. Between continued data requests from our auditors as we entered the home stretch for getting the audit completed and with fewer team members due to vacations the month seemed to fly by.

With Kelly's departure in January I have asked Rob Moody with Merina+Co to be responsible for the finance functions on an interim basis. He and his team have worked on a wide variety of financial projects with the District, most recently working on the initial water audit recommendations for utility billing.

Budget Committee Update

We will need to cancel the January 28th, 2020 Orientation meeting due to a meeting conflict. We will work on finding a new date.

Checks Issued

The District issued checks numbered 43389 through 43501 which include accounts payable and payroll checks as well as electronic withdrawals totaling \$1.66 million. Attached you will find a report showing all checks and electronic withdrawals for December 2019. There were no voided checks for the month.

Attachments

1. Checks by Date Report for December 2019

Bank Reconciliation
 Checks by Date
 User: jeff
 Printed: 01/11/2020 - 9:41AM
 Cleared and Not Cleared Checks
 Print Void Checks

<u>Check No.</u>	<u>Check Date</u>	<u>Name</u>	<u>Comment</u>	<u>Module</u>	<u>Void</u>	<u>Clear Date</u>	<u>Amount</u>
ACH Disbursement Activity							
0	12/1/2019	The Bank Of New York Mellon		AP		12/24/2019	645,047.40
0	12/3/2019	Check Commerce		AP		12/ 3/2019	172.25
13661205	12/4/2019	Oregon Department Of Revenue	OR DOR Adjustment	BRX		12/18/2019	120.00
16981127	12/4/2019	Oregon DOR - State Transit Tax	State Transit Tax Adjustment	BRX		12/ 4/2019	1.72
16981205	12/4/2019	Oregon DOR - State Transit Tax	State Transit Tax Adjustment	BRX			-1.72
0	12/9/2019	Wells Fargo Remittance Center		AP		12/ 9/2019	11,755.23
0	12/9/2019	TSYS		AP		12/10/2019	24.05
0	12/9/2019	TSYS		AP		12/10/2019	8,229.76
0	12/11/2019	Wells Fargo Bank		AP		12/11/2019	2,001.55
0	12/12/2019	Public Employees		AP		12/12/2019	3,747.74
14181212	12/12/2019	Public Employees	PERS Adjustment	BRX		12/12/2019	-0.05
0	12/13/2019	Public Employees		AP		12/30/2019	31,482.58
0	12/13/2019	Oregon Department Of Revenue		AP		12/19/2019	9,078.31
0	12/13/2019	IRS Dept of The Treasury		AP		12/18/2019	30,613.89
0	12/13/2019	OR Dept of Justice, Div of Child Support		AP		12/20/2019	640.80
0	12/13/2019	VALIC c/o JP Morgan Chase		AP		12/19/2019	4,242.15
0	12/13/2019	Nationwide Retirement Solutions		AP		12/19/2019	1,921.70
0	12/13/2019	Oregon DOR - State Transit Tax		AP		12/19/2019	108.97
0	12/13/2019		DD 00001.12.2019	PR		12/13/2019	74,322.63
0	12/30/2019	Nationwide Retirement Solutions		AP			1,921.70
0	12/30/2019	IRS Dept of The Treasury		AP			31,440.17
0	12/30/2019	VALIC c/o JP Morgan Chase		AP			4,213.33
0	12/30/2019	Oregon Department Of Revenue		AP			9,237.34
0	12/30/2019	OR Dept of Justice, Div of Child Support		AP			640.80
0	12/30/2019	Public Employees		AP			31,611.85
0	12/30/2019	Oregon Dept of Rev-Garn		AP			442.02
0	12/30/2019	Oregon DOR - State Transit Tax		AP			111.77
0	12/30/2019	Pitney Bowes Global Financial Services LLC		AP			431.55
14181230	12/30/2019	Public Employees	PERS Adjustment	BRX		12/30/2019	-0.04
0	12/31/2019	Public Employees		AP			300,000.00
0	12/31/2019		DD 00002.12.2019	PR			76,571.12
ACH Disbursement Activity Subtotal							1,280,130.57
Voided ACH Activity							0.00
Adjusted ACH Disbursement Activity Subtotal							1,280,130.57

Paper Check Disbursement Activity

43389	12/13/2019	Employee Paycheck		PR		12/16/2019	2,127.82
43390	12/13/2019	Employee Paycheck		PR		12/20/2019	1,550.69
43391	12/13/2019	Employee Paycheck		PR		12/16/2019	1,009.26
43392	12/13/2019	Employee Paycheck		PR		12/16/2019	345.13
43396	12/13/2019	A Worksafe Service, Inc.		AP		12/16/2019	60.00
43397	12/13/2019	Ace Hardware #11075		AP		12/20/2019	22.10
43398	12/13/2019	AFLAC		AP		12/20/2019	977.14
43399	12/13/2019	AFSCME Council 75		AP		12/19/2019	871.18
43400	12/13/2019	Apex Labs		AP		12/18/2019	3,120.00
43401	12/13/2019	Bend Mailing Services LLC		AP		12/17/2019	3,690.13
43402	12/13/2019	Brown And Caldwell		AP		12/17/2019	799.00
43403	12/13/2019	BSK Associates		AP		12/18/2019	4,610.00
43404	12/13/2019	Cable Huston LLP		AP		12/17/2019	5,705.00
43405	12/13/2019	Cavanaugh & Associates. PA		AP		12/26/2019	23,175.00

Bank Reconciliation
 Checks by Date
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 Cleared and Not Cleared Checks
 Print Void Checks

<u>Check No.</u>	<u>Check Date</u>	<u>Name</u>	<u>Comment</u>	<u>Module</u>	<u>Void</u>	<u>Clear Date</u>	<u>Amount</u>
43406	12/13/2019	Centro Print Solutions		AP		12/16/2019	136.05
43407	12/13/2019	Employee Reimbursement		AP		12/23/2019	239.80
43408	12/13/2019	Cintas Corporation - 463		AP		12/27/2019	177.47
43409	12/13/2019	City Of Gladstone		AP		12/18/2019	176.74
43410	12/13/2019	City Of Milwaukie		AP		12/23/2019	1,608.88
43411	12/13/2019	Comcast Cable		AP		12/30/2019	730.60
43412	12/13/2019	Contractor Supply		AP		12/16/2019	210.00
43413	12/13/2019	Craig Blackman Trucking		AP		12/19/2019	435.00
43414	12/13/2019	CTX-Xerox		AP		12/17/2019	360.36
43415	12/13/2019	Grainger, Inc.		AP		12/17/2019	615.47
43416	12/13/2019	HealthEquity		AP		12/18/2019	61.40
43417	12/13/2019	IntelliCorp		AP		12/17/2019	39.55
43418	12/13/2019	J. Thayer Company		AP		12/17/2019	94.03
43419	12/13/2019	Kaiser Permanente		AP		12/23/2019	17,260.49
43420	12/13/2019	Mail Finance		AP		12/24/2019	599.43
43421	12/13/2019	McFarlane's Bark, Inc.		AP		12/20/2019	24.53
43422	12/13/2019	Merina & Company, LLP		AP		12/17/2019	2,340.00
43423	12/13/2019	Milliman		AP		12/17/2019	1,000.00
43424	12/13/2019	Moss Adams LLP		AP		12/17/2019	40,000.00
43425	12/13/2019	Municipal Code Corporation		AP		12/17/2019	3,200.00
43426	12/13/2019	Murray, Smith & Associates Inc.		AP		12/19/2019	15,067.28
43427	12/13/2019	Net Assets Corporation		AP		12/16/2019	679.00
43428	12/13/2019	Northwest Natural		AP		12/26/2019	180.36
43429	12/13/2019	OCCMA		AP		12/27/2019	379.93
43430	12/13/2019	OCD Automation, Inc.		AP		12/16/2019	9,275.00
43431	12/13/2019	Olson Bros. Service, Inc.		AP		12/17/2019	1,268.95
43432	12/13/2019	One Call Concepts, Inc.		AP		12/18/2019	649.74
43433	12/13/2019	Oregon Health Authority		AP		12/17/2019	195.00
43434	12/13/2019	Oregon Health Authority		AP		12/17/2019	140.00
43435	12/13/2019	Polydyne, Inc.		AP		12/17/2019	4,258.10
43436	12/13/2019	Porter Yett Company		AP		12/16/2019	549.70
43437	12/13/2019	Portland Engineering Inc		AP		12/19/2019	240.00
43438	12/13/2019	Portland General Electric		AP			21,280.52
43439	12/13/2019	Precision Locksmith Service		AP		12/17/2019	125.00
43440	12/13/2019	R & L Services Inc.		AP		12/19/2019	148.18
43441	12/13/2019	Relay Resources		AP		12/17/2019	4,990.29
43442	12/13/2019	Santana Crane, Inc		AP		12/17/2019	730.00
43443	12/13/2019	Customer Refund		AP			184.03
43444	12/13/2019	SDIS		AP		12/16/2019	34,328.67
43445	12/13/2019	Tice Electric Company		AP		12/19/2019	290.00
43446	12/13/2019	Unifirst Corporation		AP		12/17/2019	90.84
43447	12/13/2019	US Bank Equipment Finance		AP		12/18/2019	220.00
43448	12/13/2019	Verizon Wireless		AP		12/18/2019	695.43
43449	12/13/2019	Waste Management Of Oregon		AP		12/19/2019	8,800.89
43450	12/13/2019	Water Environment Services		AP		12/18/2019	151.65
43451	12/31/2019	Employee Paycheck		PR			1,536.56
43454	12/31/2019	Employee Paycheck		PR			2,138.83
43455	12/31/2019	Employee Paycheck		PR			533.77
43456	12/30/2019	A Worksafe Service, Inc.		AP			1,330.00
43457	12/30/2019	Ace Hardware #11075		AP			285.16
43458	12/30/2019	AFLAC		AP			977.14
43459	12/30/2019	AFSCME Council 75		AP			721.72
43460	12/30/2019	AnswerNet		AP			321.52
43461	12/30/2019	APG Neuros		AP			1,057.28
43462	12/30/2019	BendTel Inc		AP			155.66
43463	12/30/2019	Bullard Law		AP			15,185.50
43464	12/30/2019	Cable Huston LLP		AP			5,820.00
43465	12/30/2019	Century Link		AP			802.03
43466	12/30/2019	Cessco, Inc		AP			42.12
43467	12/30/2019	Cintas Corporation - 463		AP			564.71
43468	12/30/2019	Coastal Farm & Home Supply		AP			263.98
43469	12/30/2019	Comcast Cable		AP			424.02
43470	12/30/2019	Consolidated Supply Co.		AP			2,342.39

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43471	12/30/2019	Contractor Supply		AP			64.00
43472	12/30/2019	Convergence Northwest, Inc.		AP			4,489.50
43473	12/30/2019	Craig Blackman Trucking		AP			2,181.06
43474	12/30/2019	FLO-Analytics		AP			690.00
43475	12/30/2019	Govt. Finance Officers Assoc.		AP			160.00
43476	12/30/2019	Grainger, Inc.		AP			95.92
43477	12/30/2019	GT Excavating, LLC		AP			14,706.00
43478	12/30/2019	Harris WorkSystems		AP			850.61
43479	12/30/2019	HealthEquity		AP			36.40
43480	12/30/2019	J. Thayer Company		AP			394.78
43481	12/30/2019	Luminant Digital Security		AP			2,495.00
43482	12/30/2019	Madison Biosolids, Inc.		AP			1,977.36
43483	12/30/2019	Maverick Welding Supplies Inc		AP			22.58
43484	12/30/2019	Metereaders, LLC		AP			694.17
43485	12/30/2019	Metro Overhead Door		AP			1,333.00
43486	12/30/2019	Moss Adams LLP		AP			4,000.00
43487	12/30/2019	Napa Auto Parts - Store #07078		AP			73.46
43488	12/30/2019	NCCWC		AP			76,149.84
43489	12/30/2019	OCD Automation, Inc.		AP			2,940.00
43490	12/30/2019	Pamplin Media Group		AP			68.47
43491	12/30/2019	Purchase Power		AP			84.99
43492	12/30/2019	R & L Services Inc.		AP			199.90
43493	12/30/2019	Secure Pacific Corporation		AP			314.70
43494	12/30/2019	The Sidwell Company		AP			1,246.50
43495	12/30/2019	TM Rippey		AP			1,850.12
43496	12/30/2019	Unifirst Corporation		AP			2,252.41
43497	12/30/2019	Verizon Wireless		AP			1,489.24
43498	12/30/2019	Loyd J Webert		AP			1,070.10
43499	12/30/2019	Western Exterminator Company		AP			282.65
43500	12/30/2019	Xerox Corporation		AP			83.73
43501	12/31/2019	Oregon DEQ		AP			160.00
Paper Check Disbursement Activity Subtotal							379,249.69
Voided Paper Check Disbursement Activity							0.00
Adjusted Paper Check Disbursement Activity Subtotal							379,249.69
Total Void Check Count:							0
Total Void Check Amount:							0.00
Total Valid Check Count:							139
Total Valid Check Amount:							1,659,380.26
Total Check Count:							139
Total Check Amount:							1,659,380.26



Staff Report

To: Board of Directors
From: David Mendenhall, Plant Superintendent
Agenda Item: Plant Operations
Item No.: 11c
Date: January 21, 2020

Background

The Board has requested updates at the Regular Meetings of the Board on the status of the District's Operations.

Water Reclamation Facility Operations

We looked the atmospheric river in the eye, and it turned left and went to Seattle. While we missed the potential for flooding, we still got steady days of rain in December. Operations really had the plant well prepared and set up. They put a third clarifier online to absorb higher flows. The overall process was already very stable and the plant has taken on the additional flows from rainwater very well with good clarity and no treatment problems. The new Influent Pumps are showing their ability to pass debris through as we are seeing increased trash and grit coming from the headworks. Process control numbers are steady, and the test results have been well within compliance limits. Wasting was increased mid-month from 2500 pounds to 2750 pounds to shed some excess solids and that is working well. Randy Leniger hauled 228 cubic yards of biosolids to Madison Farms in December. These were his last trips as Randy retired at the end of December. Randy served the citizens of the District well for over 23 years in a variety of positions. Thank you, Randy, for your dedication.

Inventory and maintenance work orders are taking hold in the Lucity world. Elaine Murray got the inventory section started up and is entering the data as John Krogstad and Jayson Kahler give it to her. Jayson, Elaine, and Paul Witzig agreed on a parts location numbering system and Jayson has been arranging, counting, consolidating items adding on to the inventory that had been done by John Krogstad. Elaine and Jayson got started on preventive maintenance work orders in Lucity and after some starts and stops got work orders issued. These are being completed and updated information added. Elaine then takes these and enters them in Lucity and changes any information needed and closes the work order. The more we use this the better and easier it will get.

The last new pump at the Influent Pump Station (IPS) was installed in early December. This is the #2 pump which is about half the size of the other four. This “jockey” pump allows for better wet well level management at flows in between the larger pump ranges. This has already proven out with the recent rains where flows went above the limit of one pump but did not get to the point of needing a full-size pump. By doing this it keeps the smaller pump in an efficient spot on the curve and because it is smaller it uses less power than a large pump running at a lower speed. Unfortunately, about a week after the #2 pump was installed, the #1 pump which had been running well for about a month faulted out. On inspection it turned out to be the Variable Frequency Drive (VFD) that had an internal failure. This would require a removal and rebuild to fix and you would still have an old drive. If this sounds familiar, it is because it is similar to the failures at Pump Station #3. So, at this point, #1 pump will not run. Jayson was told by one of the reps he was getting quotes from that the life cycle on the VFDs are about 10 years. Due to the age the plan is to order a new VFD for #1 because we want to be able to use the #1 pump. The quote we went with has a short lead time on one drive. Then we'll have the old VFD rebuilt at about 50% of the cost of a new one and a 30 day turn around to have as a spare for the short term and while we replace the others. Then we will budget for replacement of the three other VFDs for FY 21. This will keep us in full operation mode even in an emergency.

Regarding the VFDs at Pump Station #2, we have ordered the three VFDs that will replace the currently installed ones. When they arrive, we will have them installed and programmed one by one. While they have not been failing so far, they are the same drive and age as the ones that failed within months of each other on Pump Station #3. I did not want to take the risk of waiting.

On the day we installed IPS #2 we also used the crane to remove a motor from #2 reuse water pump which had been making bearing noises and occasionally tripping overloads. The motor was sent to Reed Electric for bearing replacement and shellacking.

At the East Return Sludge (RAS) Pump Station in the plant we installed a new Flygt pump to replace a failed older pump beginning the rehab of the station. This is the final pump station to receive our new standard pumps from Flygt. There are two other pumps in this station one of which is going bad, and their replacements have been ordered and are expected in April.

A sticking valve at the top of Digester #4 was replaced. This was a bit tricky due to the location, but Jayson and Randy were able to get it done safely. This valve allows for transfer of sludge from other digesters. Another productive month.

Attachments:

11C (i) – Operations Staff Report Rainfall vs Flow data correlation
June 2019 – December 2019

11C (ii) – Plant Performance BOD-SS graph June 2019 - December 2019



Variable Frequency Drive for IPS #1



East RAS Pump Installation

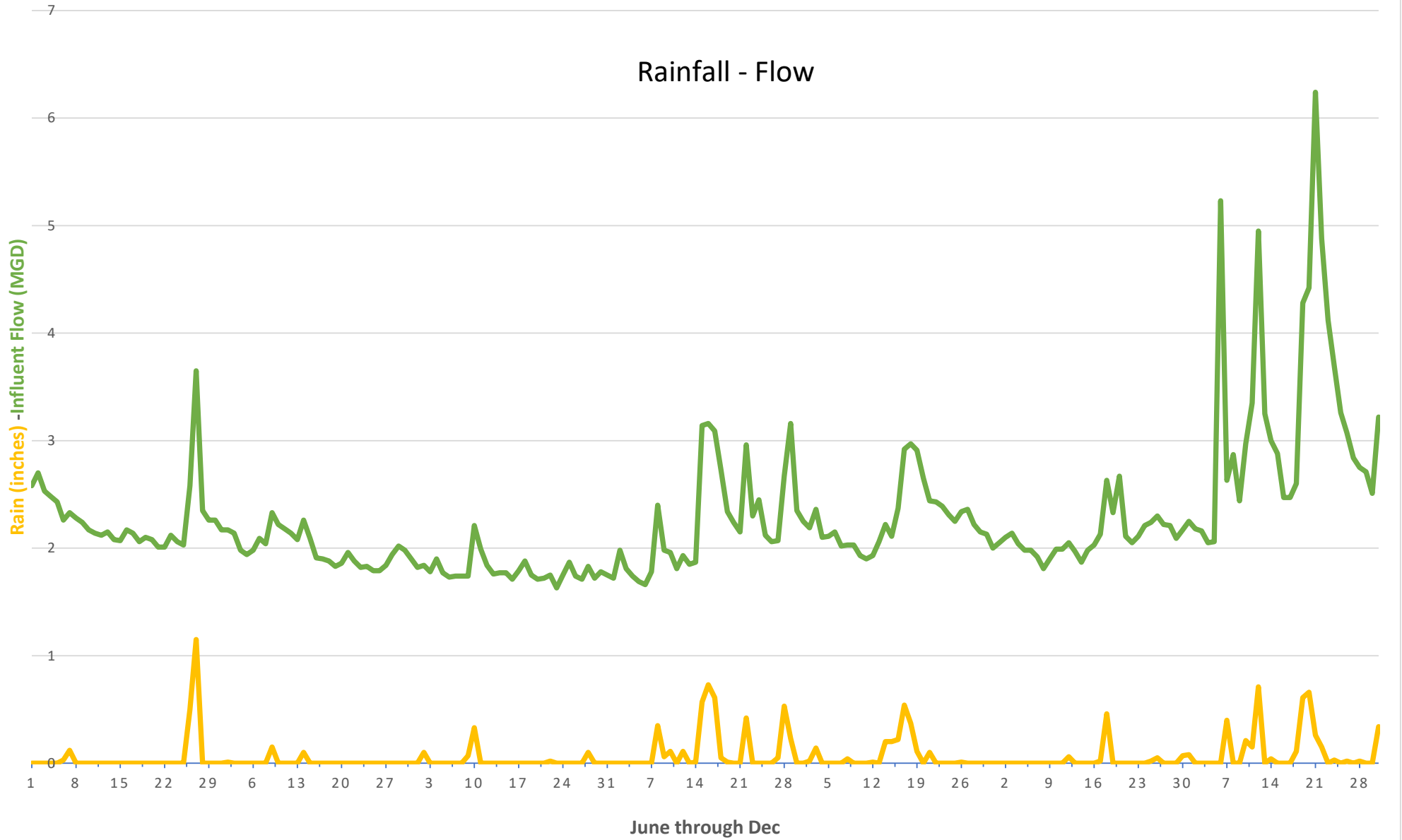


Maintenance Shop Inventory

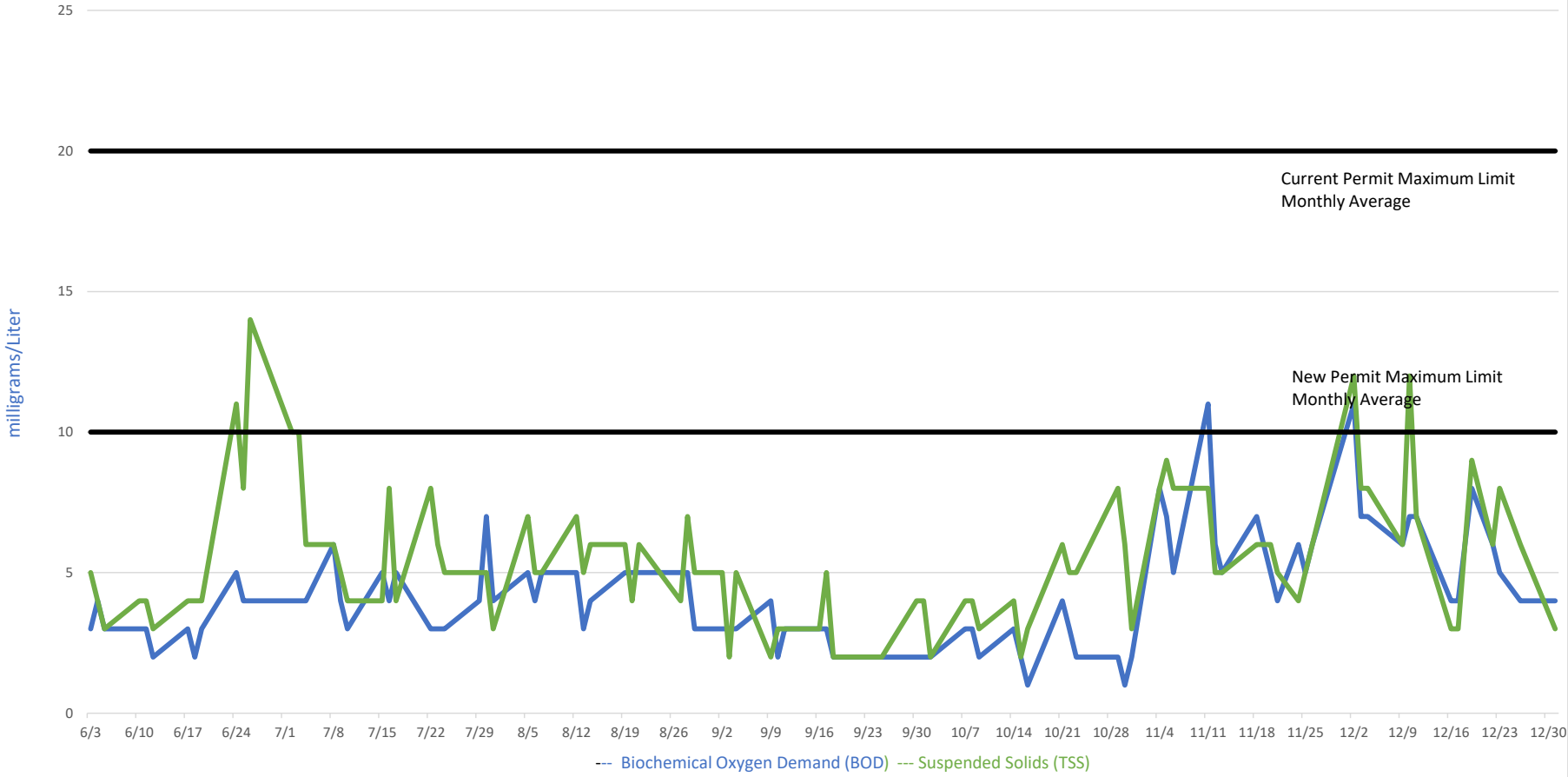


Digester #4 replacement valve

Rainfall - Flow



Effluent Water Quality





STAFF REPORT

To: Board of Directors
From: Technical Services Team
Agenda Item: Technical Services Monthly Report
Item No.: 11d
Date: January 8, 2019 for January 21, 2020 Meeting

Below is an update of various Technical Services Program efforts:

Outreach and Education

On an ongoing basis, OLWS participates in the Regional Coalition for Clean Rivers and Streams. This group of local jurisdictions – such as the City of Oregon City, the City of Wood Village, City of Gresham, Water Environment Services, Multnomah County, Clean Water Services and the Port of Portland – partners in the Metro Regional Area on messaging clean water topics such as proper winter lawn and yard fertilization, car care (oil changes and fixing leaks), and pool/hot tub maintenance. We work with a local television station to develop and pitch clean water action ideas using the voice of the weather people, a trusted local source of information. Social media campaigns around the topics are also rolled out through the partnership, and a contractor assists with purchasing ads online and targeting audiences in the area. If you have questions about the campaign messages and/or rollout, please contact Lara Christensen for more information.

The Clean Rivers Coalition Steering Committee completed two professional focus groups as part of the messaging research work for Phase II of the strategic communications outreach project. The initial statewide topic will be on pesticides, herbicides and insecticides, with a pro-water quality baseline message. As Phase II of the project wraps up, next the core team will help streamline messages developed by Brink Communications and roll out in late winter.

Planning continues through mid-March for the Children's Clean Water Festival and the Celebrating Water Forum. This year the Celebrating Water Forum is on April 7th at the Oregon City campus of Clackamas Community College and the Children's Clean Water Festival will be held at the Portland Community College's Sylvania campus on April 28th. Board members are welcome to visit the OLWS booth at either event, both run from about 9-1 p.m.

With the holiday season and winter break, school field trips were on hold. They will begin again on February 4th with native species plantings. As part of the Watershed Health Education Program (WHEP) students in the Rex Putnam High School will also visit the Water Reclamation Facility and the North Clackamas County Water Commission drinking water facility this winter/spring.

December 2019 Development Activity

	<i>This Month</i>	<i>Last Month</i>	<i>Fiscal Year-to-Date</i>	<i>This Month Last Year</i>	<i>Last Year-to-Date</i>
Pre-applications Conferences	3	1	15	0	15
Hours Spent on Development Review	25	30	185	60	390
Hours spent on Utility Permits	60	50	395	10	215
Development Permits Issued	0	1	7	1	14
Utility Permits Issued	7	5	67	2	38
New Sewer Connections	6	5	74	1	22
New Water Services	7	2	-	1	-
Active Erosion Control Permits	70	82	441	45	265
Total Erosion Control Permits Inspected	70	82	441	45	265
Active Construction Permits	11	13	88	19	142
Sanitary SDC Fees Received	\$30,990	\$25,825	\$339,178	\$5,165	\$173,445
Water SDC Fees Received	\$32,400	\$13,160	\$196,370	\$5,015	\$126,465
Plan Review Fees Received	\$4,200	\$2,000	\$32,370	\$2,944	\$51,116
Inspection Fees Received	\$4,340	\$2,170	\$23,230	\$3,142	\$54,227

Attachments

1. Development Review Status Tracker
2. Capital Project Tracker

Project Status	Address	Type of Development	Notes	Last Updated
Closed	4281 SE Manewal Ln. (Manewal North)	Residential Subdivision: 4 lots.	Oak Lodge Warranty period expires June 2019. Warranty bond released - awaiting asbuilts.	1/6/20
Closed	SE Manewal at SE Towery Ln.	Residential Subdivision; 4-lots	Oak Lodge Warranty period expires June 2019. Warranty bond released - awaiting asbuilts.	1/6/20
Warranty Period	18121 SE River Rd.	Residential Subdivision; 72-lots ; Jennings Lodge Estates	Oak Lodge Warranty period expires June 2020	1/6/20
Warranty Period	12705 SE River Rd.	Willamette View Riverview Dining Facility Replacement	Northe Pointe complete. Warranty held for SE Park Ave. CC DTD CIP	1/6/20
Warranty Period	19421 SE KAY ST	Residential Subdivision; 4 lots	Oak Lodge warranty expires Dec. 2019. Awaiting asbuilts	1/6/20
Closed	15314 SE RUPERT DR	Residential Subdivision; 7 lots	Warranty Period Ended and Bond Released. Processing Asbuilts	1/6/20
Warranty Period	Taxlots 2000 & 2100 located behind 15026 & 15018 SE Linden Ln. (Tilia Ln) Originally "Wanderlust Lane"	Residential Subdivision; 3 lots	Oak Lodge warranty period ends March 2019. Warranty complete awaiting asbuilts	1/6/20
Warranty Period	22E07CA03003 (SE Allan Rd @ SE Worthington)	Residential subdivision: 2-lots	Oak Lodge warranty expires Feb. 2020. Inspection scheduled for Feb. 2020	1/6/20
Closed	14107 SE Lee Ave	Residential subdivision: 2 lots	Oak Lodge permits expire June 2019 (6-month extension to Dec.) Processing asbuilts	1/6/20
Closed	16800 SE McLoughlin	Commercial Structural Alteration	Oak Lodge permits expire June 2019 (6-month extension to Dec.) Processing asbuilts	1/6/20
Warranty Period	3622 SE Pinehurst	Residential Subdivision; 7 lots	Warranty Period ends September 2020	1/6/20
Under Construction	4322 SE Pinehurst Ave	Residential Subdivision; 7 lots	Oak Lodge permits expire Dec. 2019	1/6/20
Under Construction	4410 SE pinehurst	Residential Subdivision; 4 lots	Water utility only. Inspections Continuing	1/6/20
Under Construction	SE Park Ave. @ SE River Rd	Road Improvements / CC DTD CIP	Stormwater treatment, roadway expansion, intersection realignment.	1/6/20
Plan Review	17624 SE RIVER RD	Multi-family residential; three (3) 2-family_ dwelling units and two (2) three family dwelling units	Oak Lodge permits expire July 2019 (6-month extension to Jan. 2020)	1/6/20
Plan Review	16518 SE River Rd.	Head Start School Additions	Land Use Comments sent to CCDTD. County land use expiration timeline.	1/6/20
Plan Review	SE Kellogg @ SE Birch	Road Improvements / CC DTD CIP	Sidewalk, stormwater treatment. Awaiting Site Development permit submittal.	1/6/20
Plan Review	15601 SE Meadowlark Ln.	2-Parcel Partition	Land Use Comments sent to CCDTD. County land use expiration timeline.	1/6/20
Plan Review	SE Maple St at SE River Rd 21E11AB01100	Residential Subdivision	Land Use Comments sent to CCDTD. County land use expiration timeline.	1/6/20
Plan Review	15099 SE McLoughlin Blvd	CORPORATE HEADQUARTERS CLACKAMAS FEDERAL CREDIT UNION	Application submitted to Oak Lodge. Oak Lodge permit expires March 2020	1/6/20
Plan Review	2342 Kora Ln	Garage: Historical	Land Use Comments sent to CCDTD. County land use expiration timeline.	1/6/20
Plan Review	View Acres Elementary	School Addition	Land Use Comments sent to CCDTD. County land use expiration timeline.	1/6/20
Plan Review	19315 SE River Rd	Residential 2-lot partition	Pre-app Comments sent to CCDTD. County land use expiration timeline.	1/6/20
Pre-Application	13505 SE River Rd	Rose Villa Phase 4 Medical Building	Pre-app Comments sent to CCDTD. County land use expiration timeline.	1/6/20
Pre-Application	13822 SE Oatfield Rd	Residential zone change from R-10 to R-7 and a 10-lot minor subdivision.	Pre-app Comments sent to CCDTD. County land use expiration timeline.	1/6/20
Pre-Application	15515 SE Wallace Rd	Residential: three-lot partition	Pre-app Comments sent to CCDTD. County land use expiration timeline.	1/6/20
Pre-Application	1901 SE Oak Grove Blvd	Alteration of a Nonconforming Use to replace a portion of existing New Urban HS facility	Pre-app Comments sent to CCDTD. County land use expiration timeline.	1/6/20
Pre-Application	15115 SE East Ave	Residential Subdivision	Pre-app Comments sent to CCDTD. County land use expiration timeline.	1/6/20
Pre-Application	12780 SE McLoughlin	High Density Multi-Family	Pre-app Comments sent to CCDTD. County land use expiration timeline.	1/6/20
Pre-Application	12633 SE Oatfield Rd	Residential Subdivision	Pre-app Comments sent to CCDTD. County land use expiration timeline.	1/6/20
Pre-Application	15314 SE East Ave	Second dwelling unit to an existing home	Pre-app Comments sent to CCDTD. County land use expiration timeline.	1/6/20

<i>Project Status</i>	<i>Address</i>	<i>Type of Development</i>	<i>Notes</i>	<i>Last Updated</i>
Pre-Application	2718 SE Risley	Zone change and 4 - 6 lot minor subdivision with conditional use for one three-family dwelling	Pre-app Comments sent to CCDTD. County land use expiration timeline.	1/6/20
Pre-Application	2718 SE Risley	Zone change and 4 - 6 lot minor subdivision with conditional use for one three-family dwelling	Pre-app Comments sent to CCDTD. County land use expiration timeline.	1/6/20

OAK LODGE

WATER SERVICES

STAFF REPORT

To: Board of Directors
From: Todd Knapp, Operations Manager Field
Agenda Item: Field Operations Report
Item No.: 11e
Date: January 21, 2020

Background

The Board has requested updates at the Regular Meetings of the Board on the status of the District's Operations.

Operations Administration

Water Crew highlights: Crews found and replaced a leaking two port Hydrant on Anspach Street, repaired a main leak on River Bluff Ct., and also provided a helping hand to the sewer crew by cleaning up leaves around critical catch basins and ditches. Crews worked hard tackling the large maintenance list that has been generated by the meter change out contractor, things like broken boxes, broken or damaged curb stops, replacing iron and plastic services.

Sewer crews were also busy dealing with several storm water related issues of their own.



Apparently, there are a multitude of storm water lines that were placed in people's back yards, with no real way for us to get access to them. Fortunately, in one particular case, access to a customer's back yard was granted, a large 4' deep hole was dug (not by our crews) but by a local contractor,



The pipe was finally found but with no lid, a hole needed to be cut, exposing the inside of the pipe, a root cutter was then lowered into the hole and began working its way down the pipe, in just a short time the cutter stalled but after much effort the cutter finally worked its way through, then the camera was lowered down into the hole and



what was found, a massive root ball blocking most of the storm line, (see picture on the right) the root cutter then needed to be modified in order to clean out all the roots and was then lowered back into the hole, in the end the line is free from roots and the tree was cut down to prevent further root intrusion.

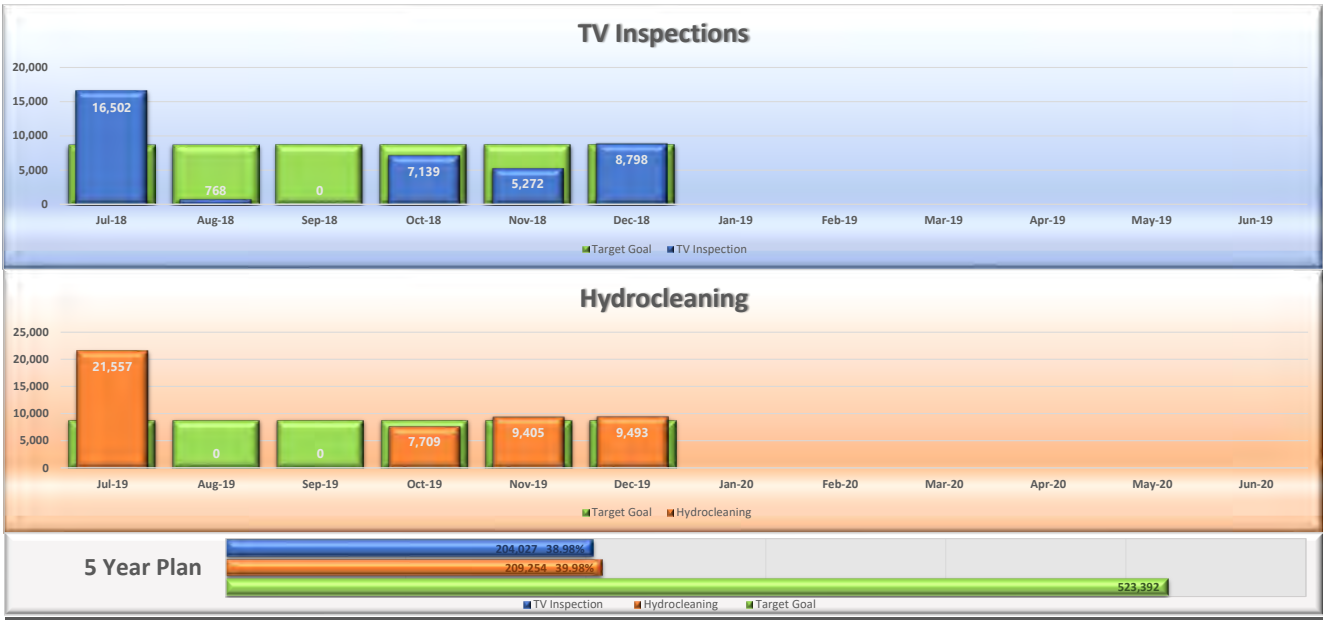


Field Operations Monthly Report from November 2019

Highlights for the month:

- Meters replaced, new services added, and leaks repaired (See chart)
- Main break at River Bluff Ct
- Hydrant replaced on Anspach St
- Collections Crews helped with cleaning and clearing storm water lines
- Main and service leaks repaired
- Water consumption for **December: 74,759,000 Gallons (-0.39% Below the 10-year average of 75,049,214)** (See metered monthly consumption chart)

Oak Lodge Water Services Collections Report



Month	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Current Month %	To Date Totals	Year 1 % Complete	5 Year %	Total Feet Remaining
TV Inspection	2,512	11,906	13,532	8,961	4,566	4,987	5,092	1,548	1,942	9,212	7,875	6,239		78,372	74.87%	14.97%	445,020
Hydrocleaning	6,967	8,539	13,085	10,206	4,472	2,328	4,723	513	4,906	8,953	8,638	5,367		78,697	75.18%	15.04%	444,695
Target Goal	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723		104,678	100.00%	20.00%	418,714
Actual to Goal	-3,984	1,499	4,585	860	-4,204	-5,066	-3,816	-7,693	-5,299	359	-467	-2,920		-26,144			
Grease Line	3,625	5,105	3,276	3,625	10,227	3,859	3,625	4,757	3,625	3,276	11,061	4,225		60,286			

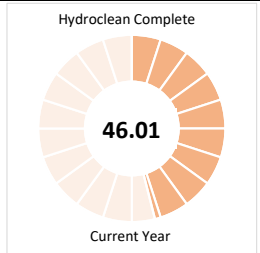
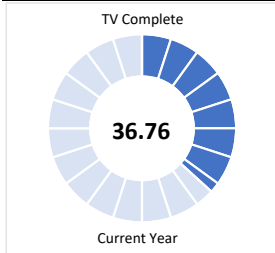
Month	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Current Month %	To Date Totals	Year 2 % Complete	5 Year %	Total Feet Remaining
TV Inspection	4,308	10,281	10,488	3,388	5,886	13,480	3,283	8,993	4,635	1,657	4,923	15,854		87,176	83.28%	31.63%	357,844
Hydrocleaning	3,619	9,456	6,197	13,307	2,636	16,171	1,124	11,765	14,542	3,289	287	0		82,393	78.71%	30.78%	362,302
Target Goal	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723		104,678	100.00%	40.00%	314,035
Actual to Goal	-4,760	1,145	-381	-376	-4,462	6,102	-6,520	1,656	865	-6,250	-6,118	-796		-19,894			
Grease Line	3,276	4,757	3,625	3,625	3,625	2,192	5,105	3,625	2,963	10,872	4,006	3,276		50,947			

Month	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Current Month %	To Date Totals	Year 3 % Complete	5 Year %	Total Feet Remaining	
TV Inspection	16,502	768	0	7,139	5,272	8,798								100.86%	38,479	36.76%	38.98%	319,365
Hydrocleaning	21,557	0	0	7,709	9,405	9,493								108.83%	48,164	46.01%	39.98%	314,138
Target Goal	8,723	8,723	8,723	8,723	8,723	8,723								100.00%	52,338	50.00%	50.00%	261,697
Actual to Goal	10,306	-8,339	-8,723	-1,299	-1,385	423								-9,017				
Grease Line	1,480	3,276	3,276	1,480	9,392	3,276								22,180				

Month	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Current Month %	To Date Totals	Year 3 % Complete	5 Year %	Total Feet Remaining
TV Inspection																	0
Hydrocleaning																	0
New Target Goal																	0
Grease Line														0			0

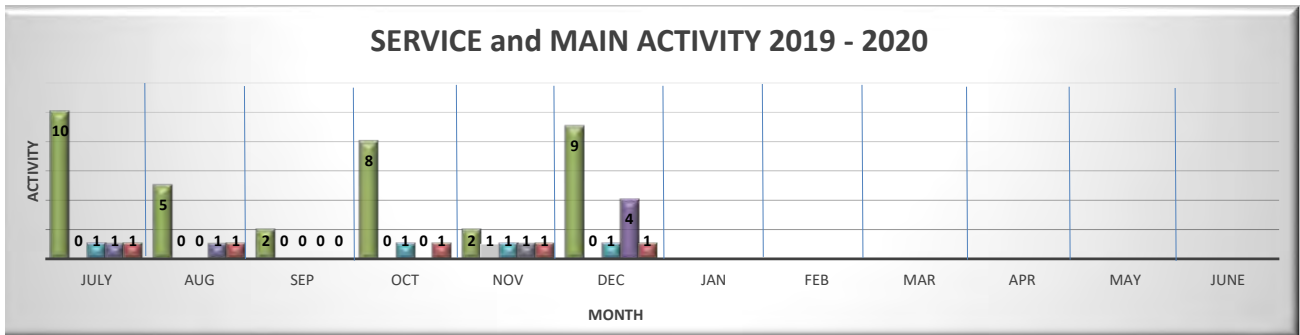
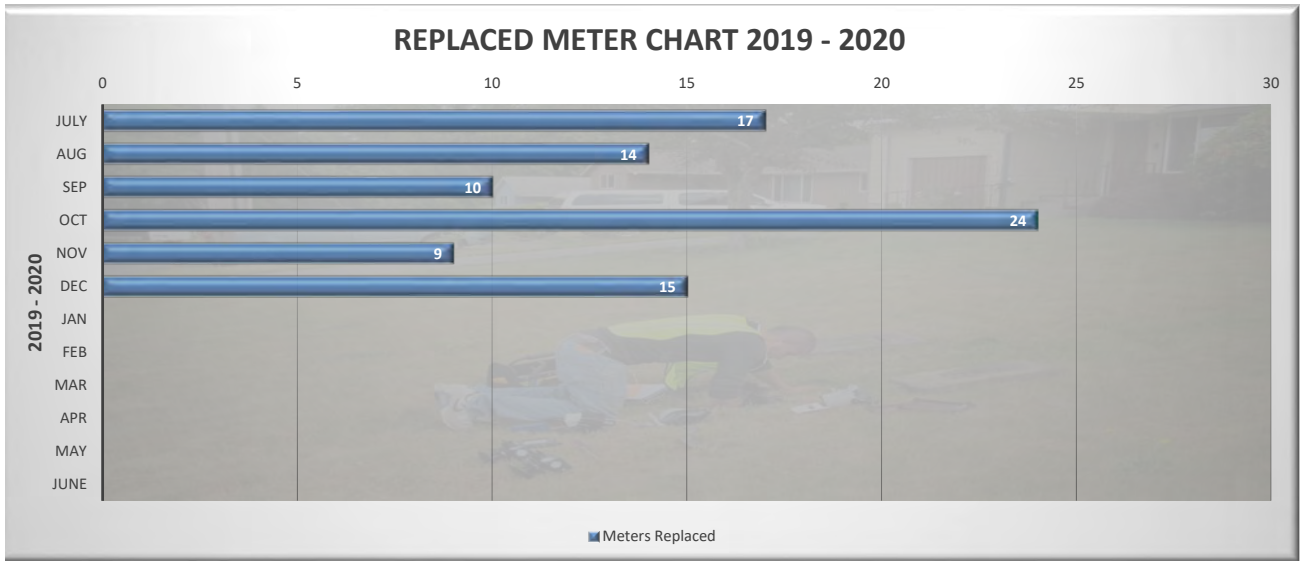
Month	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Current Month %	To Date Totals	Year 3 % Complete	5 Year %	Total Feet Remaining
TV Inspection																	0
Hydrocleaning																	0
New Target Goal																	0
Grease Line																	0

	Year 1	Year 2	Year 3	Year 4	Year 5	Remaining
Total Feet	523,392	523,392	523,392	523,392	523,392	
Target Per Year	104,678	104,678	104,678	104,678	104,678	
Target Per Month	8,723	8,723	8,723			
Actual Per Year TV	78,372	87,176	38,479			319,365
Actual Per Year Hyd	78,697	82,393	48,164			314,138
Make up	-26,144	-19,894	-61,357			
Percent Completed	75%	81%	41%	0%	0%	39%



Current Basin: B

Oak Lodge Water Services Water Report



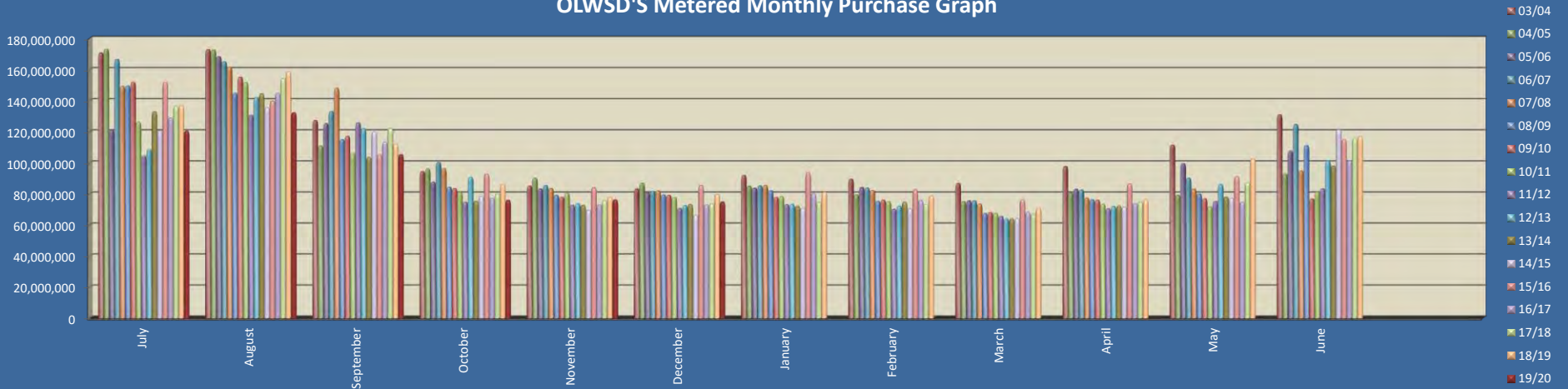
Fiscal Year 2019 - 2020	Month	Meters Replaced	New Services	Iron Services Renewed	Plastic Services Renewed	Service Leaks Repaired	Main Leaks Repaired
2019	July	17	10	0	1	1	1
2019	Aug	14	5	0	0	1	1
2019	Sep	10	2	0	0	0	0
2019	Oct	24	8	0	1	0	1
2019	Nov	9	2	1	1	1	1
2019	Dec	15	9	0	1	4	1
2020	Jan						
2020	Feb						
2020	Mar						
2020	Apr						
2020	May						
2020	June						
Yearly Total		89	36	1	4	7	5

Backflow Program Update for the Month of December						
Signed up to Date	Devices Repaired	New Installations	Notice of Non- Compliance	Notice of Violation	Notice of Termination	Force Test
560	5	0	1	0	0	0
List of Backflow Letters						
Letter 1	Notice of Non-Compliance			District made aware (30 days to respond)		
Letter 2	Notice of Violation			Customer has final 30 days to correct		
Letter 3	Notice of Termination of water service			Customer has 5 days til water shut off		

Water Purchased from NCCWC By Month and Year

Year	Fiscal 1st Half						Fiscal 2nd Half						Total Yearly Con	Average Daily Demand	10 Year % Ave
	July	August	September	October	November	December	January	February	March	April	May	June			
03/04	170,652,000	172,726,000	127,198,000	94,416,000	85,037,000	83,285,000	91,933,000	89,441,000	86,755,000	97,665,000	111,392,000	130,863,000	1,341,363,000	3.67	
04/05	172,883,000	172,499,000	110,696,000	95,973,000	90,079,000	86,823,000	84,976,000	79,415,000	74,996,000	80,616,000	79,088,000	92,885,000	1,220,929,000	3.35	
05/06	120,871,000	168,248,000	125,172,000	87,512,000	83,230,500	80,773,500	83,697,000	84,098,667	75,580,333	83,028,000	99,436,000	107,501,000	1,199,148,000	3.29	
06/07	166,449,000	164,957,000	132,989,000	100,180,000	85,350,000	81,587,000	85,179,000	83,766,000	75,622,455	82,508,545	90,129,000	124,696,000	1,273,413,000	3.49	
07/08	149,207,000	161,512,000	147,980,000	96,159,000	83,445,000	81,921,000	85,466,000	82,200,000	73,405,000	77,221,722	83,162,278	94,885,000	1,216,564,000	3.33	
08/09	149,422,000	144,592,000	114,830,000	84,307,000	79,094,000	79,319,000	82,042,000	75,196,000	67,364,000	76,238,000	79,968,000	111,127,286	1,143,499,286	3.13	
09/10	151,804,000	155,069,000	117,099,000	83,457,000	77,782,000	79,107,000	77,735,000	75,975,000	67,986,000	75,943,000	76,903,000	76,720,000	1,115,580,000	3.06	101.42%
10/11	125,996,000	151,590,000	105,880,000	81,052,000	80,389,000	77,515,000	78,266,000	74,983,000	67,462,000	73,285,000	71,613,000	81,189,000	1,069,220,000	2.93	97.21%
11/12	104,328,000	130,684,000	125,733,000	74,646,000	72,657,000	70,555,000	73,041,000	70,104,000	65,501,000	70,380,000	75,148,000	83,256,000	1,016,033,000	2.78	92.37%
12/13	108,236,000	142,023,000	121,981,000	90,545,000	73,672,000	72,454,000	73,277,000	72,051,000	63,866,000	71,906,000	86,085,000	101,278,000	1,077,374,000	2.95	97.95%
13/14	132,837,000	144,354,000	103,403,000	75,217,000	72,624,000	73,180,000	72,052,000	74,566,000	63,886,000	72,171,000	77,889,000	97,978,000	1,060,157,000	2.90	96.38%
14/15	120,411,000	135,271,000	120,008,000	78,257,000	69,534,000	66,200,143	70,840,857	70,318,000	63,972,000	71,515,000	77,173,000	121,185,000	1,064,685,000	2.92	96.79%
15/16	151,728,000	139,696,000	105,238,000	92,781,000	83,966,000	85,368,000	93,522,000	82,637,000	76,044,000	86,443,000	90,989,000	114,745,667	1,203,157,667	3.30	109.38%
16/17	128,722,333	144,599,000	113,212,000	77,196,000	72,766,000	72,839,000	80,205,000	75,867,000	68,040,000	73,822,000	74,515,000	101,310,000	1,083,093,333	2.97	98.47%
17/18	136,262,000	154,085,000	122,113,000	79,860,000	75,718,000	73,584,000	74,389,000	73,219,000	66,754,000	74,713,000	87,263,000	115,543,000	1,133,503,000	3.11	103.05%
18/19	136,887,000	158,433,000	112,001,000	86,062,000	77,769,000	79,690,000	81,040,000	78,594,000	70,790,000	76,199,000	102,519,000	116,626,000	1,176,610,000	3.22	106.97%
19/20	120,368,000	132,181,000	105,200,000	75,825,000	76,089,000	74,759,000									
20/21															
	10 Year Average	10 Year Average	10 Year Average	10 Year Average	10 Year Average	10 Year Average	10 Year Average	10 Year Average	10 Year Average	10 Year Average	10 Year Average	10 Year Average	10 Year Average	10 Year ADD	Winter Ave
	126,577,533	143,291,600	113,476,900	81,144,100	75,518,400	75,049,214	77,436,786	74,831,400	67,430,100	74,637,700	82,009,700	100,983,067		3.01	75,772,467
	95.09%	92.25%	92.71%	93.44%	100.76%	99.61%									Summer Ave
	-5.15%	-4.91%	-7.75%	-7.29%	-6.56%	0.76%	-0.39%								127,782,011
	-30,635,748	-6,209,533	-11,110,600	-8,276,900	-5,319,100	570,600	-290,214								

OLWSD'S Metered Monthly Purchase Graph





AGENDA ITEM

Agenda Item: Call for Public Comment
Item No.: 12
Presenters: N/A

Background:

Members of the public are invited to identify agenda items on which they would like to comment or provide testimony. The Board may elect to limit the total time available for public comment or for any single speaker depending on meeting length.

OAK LODGE
WATER SERVICES
AGENDA ITEM

Agenda Item: Business from the Board
Item No.: 13
Presenters: N/A

Background:

The Board of Directors appoints District representatives from time to time to serve as liaisons or representatives of the District to committees or community groups.

Directors assigned specific roles as representatives of the District are placed on the agenda to report to the Board on the activities, issues, and policy matters related to their assignment.

Business from The Board Items Include:

1. Board Liaison Review
2. Individual Board Member Reports
3. Parking Lot

Date Added	Item	Work Update
6/18/2019	SDC and ADU Comparison to other Communities	Jason working to gather information
8/13/2019	OLWSD/Gladstone IGA	Jason and Jim Whynot will be meeting December 23 to prepare for larger scale meetings in February 2020

Oak Lodge Water Services
OLWS Board Member Liaison Assignments 2020-01-15

Board/Committee	Current Primary	Current Alternate	Meeting Schedule
Clackamas River Water	Kevin Williams	Paul Gornick	Monthly - Second Thursday, 6 p.m.
Sunrise Water Authority	Paul Gornick	Kevin Williams	Monthly - Fourth Wednesday, 6 p.m.
C-4	Paul Gornick	Susan Keil	Monthly - First Thursday, 6:45 p.m.
Regional Water Providers Consortium	Mark Knudson	Paul Gornick	Triannually - First Wednesday, 6:30 p.m.
Oak Grove Community Council	Mark Knudson	Susan Keil	Monthly - Fourth Wednesday, 7:00 p.m.
SDAO	All		Varies
AWWA	All		Varies
Jennings Lodge CPO	Kevin Williams	Paul Gornick	Monthly - Fourth Tuesdays, 7:00 p.m.
North Clackamas County Water Commission (NCCWC)	Paul Gornick/Kevin Williams	Mark Knudson	Quarterly - Fourth Thursday in Jan/March/June/Sept, 5:30 p.m.
Chamber of Commerce	Ginny Van Loo	Susan Keil	Monthly - Third Wednesdays, 11:45 a.m.-1:15 p.m.
New Concord Task Force	Ginny Van Loo	- not appointed to task force	Quarterly
Healthy Watersheds	Kevin Williams		
OGLO Bike-Ped Bridge Advisory Group	Lynn Fisher	None needed	Task Force will dissolve after project decision
Water Research Foundation	Mark Knudson	None needed	



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Board of Commissioners: Regular Meeting
Wednesday, December 18, 2019 - 6:00 p.m.

AGENDA

CALL REGULAR MEETING TO ORDER

- Pledge of Allegiance
- Approval of Agenda

Please sign the attendance sheet. Members of the public are welcome to speak for a maximum of three minutes. Public comment provided at the beginning of the agenda will be reserved for comment on special presentations, letters and complaints. Public comment related to specific agenda items must be held until the board addresses that item.

1. CONSENT AGENDA

- 1.1 Approval of Minutes
- 1.2 Acceptance of Water Mains and Related Facilities for Pleasant Valley Villages Phase 3 Subdivision
- 1.3 Approval of Special Districts Insurance Services Longevity Credit and Rate Lock Agreement

2. DISCUSSION ITEMS

- 2.1 Financial Statements
- 2.2 Adopt Resolution 2019-12, Supplemental Budget for PERS EIF payment
- 2.3 Adopt Resolution 2019-13, Prevention of Workplace Discrimination, Harassment, and Retaliation Policy
- 2.4 Potential Service Above 470 Foot Elevation
- 2.5 Financial Assistance Program

3. STAFF REPORTS

- 3.1 Manager's Update
- 3.2 Engineering & Construction Reports
- 3.3 Operational Reports

4. BOARD BUSINESS

- 4.1 Board Calendar
- 4.2 Liaison Reports
- 4.3 Information Items
- 4.4 Future Agenda Items

6. WORK SESSION ON RATES

NO DECISIONS WILL BE MADE BY THE BOARD.

POSTED FRIDAY, DECEMBER 13, 2019 PER REQUIREMENTS.

The meeting site is accessible to persons with disabilities. Requests for an interpreter for the hearing impaired should be directed to Cindy Wolff at 503-761-0220 or cwolff@sunrisewater.com at least 48-hours in advance.

**Sunrise Water Authority
December 18, 2019 Board Meeting
Paul Gornick's Notes**

- Board chairman called meeting to order, then approved the consent agenda, which included minutes from the November meeting, acceptance of water mains from the Pleasant Valley Villages Phase 1 subdivision, and approval of participation in the longevity credit and rate lock program of SDIS.
- Board approved the November 2019 financial statements.
- Board adopted a resolution for a supplemental budget for participation in the PERS EIF program.
- Board adopted a resolution adopting the Prevention of Workplace Discrimination, Harassment, and Retaliation Policy.
- Board approved an amount of \$25,000 for the Low-Income Financial Assistance Program, which will provide a \$100 annual credit to participants approved through Clackamas County Health, Housing, and Human Services Department.
- GM Wade Hathhorn gave Manager's update, which noted the winter shutdown of the Reservoir 11 project, the near completion of the Highway 212 main abandonment project, the Notice of Vacancy for Board Zone #5 Position, a reminder about SDAO conference registration, and that the 2018-2019 CAFR/Audit is complete and staff is awaiting the report.
- Tim Janssen gave the engineering, construction, and operation reports, which noted that 777 lots were available as of the end of November 2019. The 12-month total of new Equivalent Residential Units is approximately 400, and the 12-month rolling average of unaccounted water is at a little over 6%.
- The liaison reports were given, and the January through March board calendar was discussed to account for interviews of candidates for Zone #5 commissioner and the schedule for rate hearing and adoption of revised rates.
- A work session on rates was held following the regular meeting.

Oak Lodge Water Services – January 21, 2020

Business from the Board – Report by Mark Knudson

Page 1 of 1

Meetings Attended During the Past Month

1. December 17, 2019 – Oak Lodge Water Services Board meeting

Meetings Scheduled for the Coming Month

1. January 22, 2020 – Oak Grove Community Council meeting
2. January 27, 2020 – Business Oregon Audit Committee meeting, Salem
3. January 28, 2020 – OLWSD Budget Committee meeting
4. February 5, 2020 – Regional Water Providers Consortium Board meeting
5. February 6-8, 2020 – SDAO Annual Conference, Seaside
6. February 7, 2020 – Infrastructure Finance Authority meeting, 2-hour telecon

OAK LODGE
WATER SERVICES
AGENDA ITEM

Agenda Item: Executive Session
Item No.: 14
Presenters: N/A

Background:

Convene Executive Session under ORS 192.660(2)(d) – to conduct deliberations with persons designated by the governing body to carry on labor negotiations.

OAK LODGE
WATER SERVICES
AGENDA ITEM

Agenda Item: Adjourn Executive Session
Item No.: 15
Presenters: N/A

Background:

Adjourn Executive Session and make any necessary motions as a result of Executive Session discussions.