

**Agenda**  
**Elk Point City Council**  
**Regular Meeting**  
**Tuesday, August 1, 2023 @ 7:00pm**  
**Elk Point City Hall**

**Regular council meeting will begin at 7:00pm**

- (1) Call to Order and Roll Call
- (2) Approve Agenda
- (3) Approve Minutes
- (4) Approve Payment of Bills
- (5) Public Forum
  - Public Hearing (7:00pm) for a survey plat for Gary and Barb Nebelsick.
- (6) Unfinished Business
  - Motion to approve survey plat
  - Bolten & Menk Facility Report
  - Main St. Sidewalk Discussion
  - Washington and Elm St. Drainage Discussion
- (7) New Business
  - Schedule a special meeting in August for the 2024 Budget.
  - Reschedule regular meetings in September.
- (1) City Hall Report
- (2) Information Items
  - August 2023 Calendar
  - Overtime Report

City of Elk Point  
Mission Statement

To provide services that promote the highest quality of life through cost effective and efficient governance

## UNAPPROVED MINUTES OF THE REGULAR MEETING OF THE ELK POINT CITY COUNCIL

The Elk Point City Council met in regular session on Tuesday, July 11, 2023, at 6:30pm in the council chambers of City Hall located at 106 W. Pleasant Street with Mayor McCreary presiding and these members present: Abraham, Penfield, Verros and VonHaden, Hurlbert and Irlbeck. No one was absent. Also present were City Attorney Thompson, City Engineer Nebelsick, City Administrator Tuttle, Public Works Director Job, Police Chief Limoges, and Finance Officer Hammitt.

The meeting began at 6:30pm with a study session and the regular council meeting began at 7:00pm.

Motion made by Penfield, seconded by Hurlbert to approve the agenda. All in favor.

VonHaden moved and Verros seconded a motion to approve the minutes from the June 6, 2023, council meeting. Unanimous.

Motion and second, Abraham/Irlbeck to approve the following salaries and bills and to instruct the Finance Officer for payment of the same. All in favor. Salaries: General Fund: \$91,183.68; Enterprise Fund: \$29,617.79; Fringe Benefits: General Fund: \$19,252.60; Enterprise Fund: \$8,495.32; Bills: Aflac-insurance: \$902.52; American Popcorn Company-concessions: \$62.00; American Recognition-uniforms: \$285.00; Amsoil, Inc.-supplies: \$1,078.84; Avera Occupational Health-professional services: \$287.00; Avery Brothers-supplies: \$151.53; Barkley Asphalt, Inc.-asphalt: \$17,093.02; Bomgaars-uniforms: \$238.96; Border States Electric Supply-supplies: \$2,257.46; Cardmember Services-supplies: \$5,348.74; Chesterman Co.-concessions: \$781.20; City of Vermillion-tipping fees: \$5,418.50; Collier, Beverly-reimbursement for repairs: \$2,500.00; Core & Main-supplies: \$5,997.11; Craig Thompson Attorney at Law-professional services: \$1,752.60; DeBoer Tree Farm-trees: \$1,325.00; Demco, Inc.-supplies: \$734.60; DGR Consulting Engineers, Inc.-professional services: \$393.00; Diamond Vogel Paints-supplies: \$195.70; D-P Tools, Inc.-supplies: \$25.25; East River Electric-power: \$102,739.79; ECI Systems-utilities: \$300.00; Elk Point Ace Hardware-supplies: \$1,715.41; Elk Point Chamber-donation: \$75.00; Elk Point Post Office-postage: \$300.00; EPJ Baseball/Softball Assoc.-donation: \$500.00; Fenske, Nicholas-meal reimbursement: \$11.00; Flags Unlimited 2-supplies: \$640.00; Fleet US LLC-supplies: \$126.00; Floyd River Materials-supplies: \$1,978.40; Hammitt, Erika-travel reimbursement: \$386.50; Hawkins, Inc.-supplies: \$5,701.79; Ingram Library Services-books: \$82.48; Jacks Uniform & Equipment-uniforms: \$303.15; Jim Hawk Truck Trailers, Inc.-supplies: \$385.88; Junior Library Guild-books: \$770.50; Leader-Courier-publishing: \$237.99; Loffler-copier lease: \$440.83; Matheson Tri-Gas, Inc.-supplies: \$60.35; Metering & Technology Solutions-supplies: \$1,349.54; MidAmerican Energy-utilities: \$61.52; Midcontinent Communications-utilities: \$1,575.32; Midwest Mini Melts-concessions: \$2,112.00; Midwest Read Mix-supplies: \$462.00; Mr. Golf Cart, Inc.-repairs: \$450.00; MSC Industrial Supply Co.-supplies: \$17.75; MSC-supplies: \$448.58; One Office Solutions-office expense: \$179.07; Resco-inventory for resale: \$6,732.00; Roan, Gary-professional service: \$1,040.00; Roto-Rooter-repairs: \$321.00; Runnings-supplies: \$360.62; Sanford Health Plan-insurance: \$17,301.62; Sooland Bobcat-supplies: \$587.69; South Dakota One Call-locate tickets:

\$99.75; Southeast Farmers Elevator-fuel: \$5,794.01; Spokas Landscaping, LLC-supplies: \$1,448.98; State Industrial Products-wastewater program: \$2,624.47; Sturdevant's Auto Parts-repairs: \$35.19; Sundheim Well Repair, LLC-repairs: \$1,979.60; Transource-repairs: \$396.76; Trudeau, Corey-meal reimbursement: \$11.00; Tudogs Computing, LTD-professional services: \$168.63; Two Way Solutions, Inc.-supplies: \$255.97; Union County Electric Coop.-utilities: \$8,261.00; Union County Register of Deeds-filing fees: \$30.00; US Bank Equipment Finance-copier lease: \$510.34; Utility Service Co., Inc.-repairs: \$8,241.00; Van Diest Supply Company-supplies: \$2,268.75; Verizon Wireless-utilities: \$205.42; Zep Manufacturing-supplies: \$337.69; Zimco Supply Company-supplies: \$832.23

Doug Briese discussed rental properties and storm drain at his home.

Richard Peasley attended the meeting regarding the drainage ditch previously discussed with the Council. Mr. Peasley requested the city cut off the drainage pipe and bury it or remove it completely. He also stated a better solution needs to be done. City Administrator Tuttle will discuss and review the contour study with McLaury Engineering. Mr. Peasley also spoke to the council representing the Elk Point Baptist Church. He discussed the land the church owns and asphalt parking at the current church.

Greg Hovland also spoke about drainage ditch on Washington and Clay Street.

Second reading was given to Ordinance No. 423, an Ordinance Amending the 2018 Revised Zoning Regulations for the City of Elk Point, South Dakota.

## ORDINANCE NO. 423

### AN ORDINANCE AMENDING THE 2018 REVISED ZONING REGULATIONS FOR THE CITY OF ELK POINT, SOUTH DAKOTA

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF ELK POINT, UNION  
COUNTY, SOUTH DAKOTA:

That Ordinance No. 390 be amended by changing the zoning of the following described real  
property, to-wit:

#### From Residential District to General Business District:

Parcel #03.01.35.1000, Lots 1, 2 & E ½ Lot 3 Block 35, Original Elk Point City, Union  
County, South Dakota.

Dated this 11<sup>th</sup> day July of 2023.

Deb McCreary  
Mayor

ATTEST: Erika Hammitt  
Finance Officer

(SEAL)

First Reading: June 6, 2023

Second Reading: July 11, 2023

Adoption: July 11, 2023

Publication Date: July 20, 2023

Motion made by Penfield, seconded by Irlbeck to approve the Ordinance as presented.  
Unanimous.

Discussion was held on the need for a sidewalk from Green Street to Truman Street on Main Street properties. Council agreed this needs to be completed for safety concerns with kids riding their bikes to the pool. The culvert located on one property is a concern. City Administrator Tuttle will review this with City Engineer Nebelsick and bring the information to a future meeting.

Jonathan KJose with Boy Scout Troop 87 distributed information and discussed his Eagle Scout Project to add a handicap ramp at the Historic Museum. He requested the building permit fee be waived. Penfield moved and Abraham seconded a motion to waive the building permit fee. All in favor.

Motion and second, Irlbeck/Abraham to appoint Lance Penfield as the delegate and Kris Hurlbert as the alternate delegate for the East River Annual meeting. Unanimous.

Motion made by Irlbeck, seconded by VonHaden to approve an Easement Amendment for Gary and Dawn Glover. The 44' drainage easement in Lots 35 and 36, Block 4, Country Club Estates Addition, City of Elk Point, Union County, South Dakota. All in favor.

VonHaden moved and Verros seconded a motion to approve Resolution #2023-3, Housing Infrastructure Finance Program Grant Application. Unanimous.

CITY OF ELK POINT  
RESOLUTION 2023-3

HOUSING INFRASTRUCTURE FINANCE PROGRAM GRANT APPLICATION TO THE  
SOUTH DAKOTA HOUSING DEVELOPMENT AUTHORITY

WHEREAS, the City of Elk Point desires assistance from the South Dakota Housing Development Authority for the purpose of promoting housing development in South Dakota by providing grants and loans for housing infrastructure; and

WHEREAS, SDCL 11-4 and SDCL 11-6 grant municipalities the authority to plan, zone, and create a comprehensive plan; and

WHEREAS, Title 9 of the Revised Municipal Ordinances of the City of Elk Point established the planning, zoning, and building regulations; and

WHEREAS, the 2011 Revised Elk Point Zoning Regulations establish the building, zoning, lot, and yard requirements for residential districts; and

WHEREAS, the ownership and ongoing maintenance of the development will be the responsibility of the City of Elk Point; and

WHEREAS, the City of Elk Point has adequate capacity for water supply, water treatment facilities, and wastewater treatment facilities to support the public infrastructure in the proposed project.

NOW THEREFORE BE IT RESOLVED by City of Elk Point, South Dakota, that the infrastructure plan for the Housing Infrastructure Finance Program grant application meets the municipality's infrastructure requirements, will be approved, and added to the ownership and ongoing maintenance responsibility of the municipality.

The Elk Point City Council hereby authorizes the filing of the Housing Infrastructure Financing Program grant application, including all understanding and assurances contained therein, and hereby authorizes the Mayor to, in connection with the application, provide such additional information as may be required.

Adopted this 11<sup>th</sup> day of July 2023.

Deb McCreary,  
Mayor of Elk Point

Attest:  
Erika Hammitt, Finance Officer

Discussion was held on asphaltting North Scott Street at the owner's expense. The council agreed to allow Public Works Director Job to complete the project as time allows.

Motion and second, Hurlbert/Abraham to hire Kendra Windeshausen (\$19.30/hour) as an on-call police officer as recommended by Police Chief Limoges. All in favor.

No action taken on scheduling a special meeting for a one-day malt beverage license application.

Motion made by VonHaden, seconded by Abraham to go into executive session at 8:04pm per SDCL #1-25-2 (1) Discussing the qualifications, competence, performance, character or fitness of any public officer or employee or prospective public officer or employee. The term of employee does not include any independent contractor. Unanimous.

Mayor McCreary declared the council out of executive session at 9:02pm.

Motion and second to adjourn, Penfield/VonHaden. All in favor

Attest: Erika Hammitt

Deb McCreary

Finance Officer

Mayor

Publish: July 20, 2023

## **UNAPPROVED MINUTES OF THE SPECIAL MEETING OF THE ELK POINT CITY COUNCIL**

The Elk Point City Council met in special session on Wednesday, July 19, 2023, at 7:00am in the council chambers of City Hall located at 106 W. Pleasant Street with Mayor McCreary presiding and these members present: Abraham (via telephone), Penfield, Hurlbert, and Verros. VonHaden and Irlbeck were absent. Also present were City Administrator Tuttle, City Engineer Nebelsick, and Finance Officer Hammitt.

Motion made by Penfield, seconded by Abraham to approve the agenda. Voting in favor: Penfield, Abraham, Hurlbert and Verros. Voting against: None. Motion carried.

Discussion was held on Resolution #2023-4, South Dakota Housing Infrastructure Financing Program. Penfield moved and Verros seconded a motion to approve the Resolution as presented. Voting in favor: Penfield, Verros and Abraham. Voting against: Hurlbert. Motion carried.

### **Resolution #2023-4**

#### **RESOLUTION OF APPROVAL OF HOUSING INFRASTRUCTURE PROPOSAL**

Be it resolved by the City of Elk Point, that Elk Point Investments, LLP has shared preliminary plans for the public infrastructure of Elk Point Community Infrastructure Project and desires assistance from the South Dakota Housing Development Authority for the purpose of providing housing development in South Dakota by providing grants and loans for housing infrastructure, and

Whereas, these above referenced plans have been presented and have shown to satisfy the requirements of the City of Elk Point, and

Whereas, the City of Elk Point confirms that there is capacity for adequate water supply, water treatment facilities, and wastewater treatment facilities available to support this public infrastructure project, and

Whereas, the proposed public infrastructure will be added to the ownership and ongoing maintenance responsibility by the City of Elk Point, and

Whereas, the City of Elk Point, by way of this resolution hereby approves of this proposed housing infrastructure project.

I, Erika Hammitt, Finance Officer of the City of Elk Point, South Dakota, do hereby certify that the foregoing resolution was passed by the City of Elk Point, South Dakota, at a meeting thereof held on the 19<sup>th</sup> day of July, 2023.

Deb McCreary  
Mayor

ATTEST:

Erika Hammitt  
Finance Officer

Motion and second to adjourn, Hurlbert/Verros. Voting in favor: Hurlbert, Verros, Abraham, and Penfield. No one voting against. Motion carried.

Attest: Erika Hammitt  
Finance Officer

Deb McCreary  
Mayor

Publish: July 26, 2023



# CLAIMS REPORT AUGUST 2023

VENDOR NAME	REFERENCE	VENDOR TOTAL
ACE ENGINE & PARTS DIST.	CUP HOLDER	\$18.75
AFLAC	AFLAC PAYMENT DENTAL & VISION	\$850.68
BOMGAARS	TRIMMER LINE & HEAD REPLACEMENT	\$63.98
BRICK MARKERS	TILES FOR POOL	\$23.32
CARDMEMBER SERVICES	SUPPLIES	\$4,235.18
CHESTERMAN CO.	POOL CONCESSION DRINKS	\$469.20
CITY OF SIOUX FALLS	BACTERIA WATER TESTS 2ND QUARTER 2023	\$101.50
CITY OF VERMILLION	TIPPING FEES 93203945	\$5,125.46
DAKOTA PUMP INC.	KUM & GO LIFT STATION REPLACED FLOATS	\$1,430.87
EAST RIVER ELECTRIC	POWER	\$116,497.39
ECI SYSTEMS	ELK 24V 40VA TRANSFORMER	\$154.11
ELK POINT ACE HARDWARE	SUPPLIES	\$4,913.86
ELK POINT CHAMBER	2023 CHAMBER DUES	\$100.00
FLOYD RIVER MATERIALS	ROAD GRAVEL	\$2,760.62
HUNDERTMARK, INC.	PRESSURE WASHER SUPPLIES	\$20.55
JACKS UNIFORM & EQUIPMENT	CLOTHING ALLOWANCE WILLIS	\$164.40
JEFF'S LAWN CARE	REPAIR SPRINKLER LINE AT BEN IRLBECK'S RESIDENCE	\$61.20
JIM HAWK TRUCK TRAILERS, INC	55 GAL DEF/TERRA & WINDSHIELD SOLVENT/FREON	\$1,057.47
JONES FOOD CENTER	SUPPLIES	\$1,354.81
LEADER-COURIER	PUBLISHING	\$284.86
MIDAMERICAN ENERGY	UTILITIES	\$67.00
MIDCONTINENT COMMUNICATIONS	UTILITIES	\$375.61
MSC	SUPPLIES	\$1,473.94
RESCO	4 - 50 GALLON WATER HEATERS	\$4,940.00
RUNNINGS SUPPLY INC	CYLENCE ULTRA CONCENTRATE & HOSE/BATTERIES	\$836.93
SANFORD HEALTH PLAN	MONTHLY PREMIUM DUE 8/1/23	\$17,301.62
SD ASSOCIATION OF RURAL WATER	ANNUAL DUES: CLASS B MEMBER	\$715.00
SD DEPARTMENT OF HEALTH	WATER TESTS	\$1,115.00
SOUTHEAST FARMER ELEVATOR COOP	FUEL	\$4,510.18
STAN HOUSTON	WOVEN FABRIC	\$286.00
STAPLES CREDIT PLAN	OFFICE EXPENSE	\$489.77
STATE INDUSTRIAL PRODUCTS	WASTEWATER PROGRAM	\$2,624.47
TRANSOURCE	MAINTAINER COOLANT/HOSE	\$418.04
UNUM LIFE INSURANCE COMPANY	LIFE & AD&D COVERAGE	\$95.89
WESCO DISTRIBUTION	20 LED POST TOP LIGHT	\$9,760.00

**TOTAL CLAIMS**

**\$184,697.66**

## June 2023 Expenditure Report

Fund	Account Description	2023 Budget	June 2023 Amount	2023 YTD Amount	Balance
<b>FUND 101 GENERAL FUND</b>					
<b>DEPT 41100 LEGISLATIVE</b>					
E 101-41100-41100	SALARIES AND WAGES	\$205,900.00	\$17,070.61	\$106,652.29	\$99,247.71
E 101-41100-41101	EXECUTIVE SALARIES	\$20,760.00	\$0.00	\$6,620.00	\$14,140.00
E 101-41100-41103	OVERTIME WAGES	\$200.00	\$0.00	\$0.00	\$200.00
E 101-41100-41106	LONGEVITY PAY	\$1,350.00	\$0.00	\$100.00	\$1,250.00
E 101-41100-41200	OASI	\$17,450.00	\$1,210.84	\$8,055.06	\$9,394.94
E 101-41100-41300	RETIREMENT	\$12,500.00	\$1,024.23	\$6,405.09	\$6,094.91
E 101-41100-42100	INSURANCE	\$36,000.00	\$2,775.86	\$18,043.01	\$17,956.99
E 101-41100-42150	INS-LIAB/PROP/WCOMP	\$4,600.00	\$0.00	\$5,286.04	-\$686.04
E 101-41100-42200	PROFESSIONAL SERVICES AND FEES	\$32,000.00	\$18,147.81	\$23,291.45	\$8,708.55
E 101-41100-42300	PUBLISHING	\$1,300.00	\$93.13	\$263.41	\$1,036.59
E 101-41100-42310	ELECTION EXPENSE	\$2,000.00	\$0.00	\$0.00	\$2,000.00
E 101-41100-42320	DUES	\$6,000.00	\$0.00	\$6,021.28	-\$21.28
E 101-41100-42500	REPAIRS AND MAINTENANCE	\$4,000.00	\$235.99	\$868.16	\$3,131.84
E 101-41100-42600	SUPPLIES AND MATERIALS	\$6,000.00	\$200.80	\$3,178.27	\$2,821.73
E 101-41100-42700	TRAVEL AND CONFERENCE	\$2,000.00	\$49.50	\$811.86	\$1,188.14
E 101-41100-42750	TRAINING	\$750.00	\$0.00	\$0.00	\$750.00
E 101-41100-42800	UTILITIES	\$1,080.00	\$540.00	\$744.69	\$335.31
E 101-41100-42830	TRANSFERS OUT	\$0.00	\$0.00	\$0.00	\$0.00
E 101-41100-42900	OTHER OTHER CURRENT EXPENSE	\$1,500.00	\$115.00	\$417.05	\$1,082.95
E 101-41100-43400	MACHINERY AND EQUIPMENT	\$2,000.00	\$36.45	\$305.77	\$1,694.23
E 101-41100-43410	COMPUTER SOFTWARE	\$2,000.00	\$0.00	\$0.00	\$2,000.00
E 101-41100-43440	SUBSCRIPTIONS	\$100.00	\$0.00	\$38.50	\$61.50
		\$359,490.00	\$41,500.22	\$187,101.93	\$172,388.07
<b>DEPT 41120 CITY HALL</b>					
E 101-41120-41100	SALARIES AND WAGES	\$4,900.00	\$420.00	\$2,700.00	\$2,200.00
E 101-41120-41200	OASI	\$375.00	\$32.14	\$206.61	\$168.39
E 101-41120-42150	INS-LIAB/PROP/WCOMP	\$3,050.00	\$0.00	\$3,524.02	-\$474.02
E 101-41120-42500	REPAIRS AND MAINTENANCE	\$2,000.00	\$333.88	\$603.32	\$1,396.68
E 101-41120-42600	SUPPLIES AND MATERIALS	\$3,000.00	\$590.13	\$1,720.31	\$1,279.69
E 101-41120-42800	UTILITIES	\$12,500.00	\$910.96	\$4,989.04	\$7,510.96
E 101-41120-42900	OTHER OTHER CURRENT EXPENSE	\$500.00	\$0.00	\$0.00	\$500.00
E 101-41120-44900	OTHER DEBT SERVICE	\$0.00	\$0.00	\$0.00	\$0.00
		\$26,325.00	\$2,287.11	\$13,743.30	\$12,581.70
<b>DEPT 41150 CONTINGENCY</b>					
E 101-41150-42900	OTHER OTHER CURRENT EXPENSE	\$30,000.00	\$0.00	\$0.00	\$30,000.00
		\$30,000.00	\$0.00	\$0.00	\$30,000.00
<b>DEPT 41900 OTHER GENERAL GOVERNMENT</b>					
E 101-41900-42900	OTHER OTHER CURRENT EXPENSE	\$0.00	\$0.00	\$0.00	\$0.00
		\$0.00	\$0.00	\$0.00	\$0.00
<b>DEPT 42100 POLICE</b>					
E 101-42100-41100	SALARIES AND WAGES	\$283,500.00	\$24,602.29	\$146,163.92	\$137,336.08
E 101-42100-41103	OVERTIME WAGES	\$15,000.00	\$1,352.77	\$8,528.66	\$6,471.34
E 101-42100-41106	LONGEVITY PAY	\$1,100.00	\$0.00	\$1,100.00	\$0.00
E 101-42100-41200	OASI	\$22,950.00	\$1,904.83	\$11,399.52	\$11,550.48
E 101-42100-41300	RETIREMENT	\$22,050.00	\$1,943.75	\$12,115.41	\$9,934.59
E 101-42100-41500	GROUP INSURANCE	\$0.00	\$0.00	\$0.00	\$0.00
E 101-42100-42100	INSURANCE	\$51,000.00	\$3,975.52	\$25,840.88	\$25,159.12

## June 2023 Expenditure Report

Fund	Account Description	2023 Budget	June 2023 Amount	2023 YTD Amount	Balance
E 101-42100-42150	INS-LIAB/PROP/WCOMP	\$10,500.00	\$0.00	\$10,572.08	-\$72.08
E 101-42100-42200	PROFESSIONAL SERVICES AND FEES	\$6,000.00	\$266.81	\$1,799.46	\$4,200.54
E 101-42100-42300	PUBLISHING	\$2,000.00	\$64.10	\$286.25	\$1,713.75
E 101-42100-42320	DUES	\$475.00	\$0.00	\$389.00	\$86.00
E 101-42100-42500	REPAIRS AND MAINTENANCE	\$6,000.00	\$261.00	\$3,427.62	\$2,572.38
E 101-42100-42550	OFFICE EXPENSE	\$2,000.00	\$205.04	\$382.70	\$1,617.30
E 101-42100-42600	SUPPLIES AND MATERIALS	\$6,000.00	\$20.97	\$5,991.01	\$8.99
E 101-42100-42610	UNIFORMS	\$4,000.00	\$50.95	\$850.80	\$3,149.20
E 101-42100-42620	AUTO EXPENSES	\$16,000.00	\$1,130.51	\$5,929.09	\$10,070.91
E 101-42100-42630	POLICE RADIO	\$2,000.00	\$0.00	\$0.00	\$2,000.00
E 101-42100-42700	TRAVEL AND CONFERENCE	\$1,000.00	\$0.00	\$0.00	\$1,000.00
E 101-42100-42750	TRAINING	\$2,500.00	\$0.00	\$0.00	\$2,500.00
E 101-42100-42800	UTILITIES	\$6,100.00	\$1,284.28	\$2,837.26	\$3,262.74
E 101-42100-42900	OTHER OTHER CURRENT EXPENSE	\$2,000.00	\$0.00	\$0.00	\$2,000.00
E 101-42100-43400	MACHINERY AND EQUIPMENT	\$20,000.00	\$36.45	\$6,081.33	\$13,918.67
E 101-42100-43410	COMPUTER SOFTWARE	\$2,000.00	\$0.00	\$1,129.20	\$870.80
E 101-42100-43440	SUBSCRIPTIONS	\$200.00	\$0.00	\$0.00	\$200.00
		\$484,375.00	\$37,099.27	\$244,824.19	\$239,550.81
<b>DEPT 42900 OTHER PROTECTION-SELF DEFENSE</b>					
E 101-42900-42500	REPAIRS AND MAINTENANCE	\$100.00	\$0.00	\$0.00	\$100.00
E 101-42900-42600	SUPPLIES AND MATERIALS	\$0.00	\$0.00	\$0.00	\$0.00
E 101-42900-42800	UTILITIES	\$3,600.00	\$299.07	\$1,296.94	\$2,303.06
		\$3,700.00	\$299.07	\$1,296.94	\$2,403.06
<b>DEPT 43100 HIGHWAYS AND STREETS</b>					
E 101-43100-41100	SALARIES AND WAGES	\$175,000.00	\$13,443.08	\$71,953.20	\$103,046.80
E 101-43100-41103	OVERTIME WAGES	\$6,000.00	\$245.24	\$2,355.87	\$3,644.13
E 101-43100-41106	LONGEVITY PAY	\$970.00	\$0.00	\$750.00	\$220.00
E 101-43100-41200	OASI	\$13,400.00	\$1,021.72	\$5,576.40	\$7,823.60
E 101-43100-41300	RETIREMENT	\$9,600.00	\$678.70	\$4,277.89	\$5,322.11
E 101-43100-42100	INSURANCE	\$25,200.00	\$1,980.44	\$12,872.86	\$12,327.14
E 101-43100-42150	INS-LIAB/PROP/WCOMP	\$18,300.00	\$0.00	\$21,726.15	-\$3,426.15
E 101-43100-42200	PROFESSIONAL SERVICES AND FEES	\$25,000.00	\$7,086.81	\$7,422.46	\$17,577.54
E 101-43100-42300	PUBLISHING	\$2,000.00	\$14.10	\$242.27	\$1,757.73
E 101-43100-42320	DUES	\$150.00	\$0.00	\$35.00	\$115.00
E 101-43100-42400	RENTALS	\$3,000.00	\$0.00	\$0.00	\$3,000.00
E 101-43100-42500	REPAIRS AND MAINTENANCE	\$35,000.00	\$3,082.17	\$22,074.99	\$12,925.01
E 101-43100-42550	OFFICE EXPENSE	\$1,000.00	\$0.00	\$0.00	\$1,000.00
E 101-43100-42600	SUPPLIES AND MATERIALS	\$20,000.00	\$2,404.34	\$11,105.06	\$8,894.94
E 101-43100-42610	UNIFORMS	\$900.00	\$124.99	\$163.98	\$736.02
E 101-43100-42620	AUTO EXPENSES	\$17,000.00	\$1,235.66	\$6,225.99	\$10,774.01
E 101-43100-42700	TRAVEL AND CONFERENCE	\$1,000.00	\$239.64	\$482.64	\$517.36
E 101-43100-42715	STREET REPAIRS	\$85,000.00	\$0.00	\$360.75	\$84,639.25
E 101-43100-42720	SNOW REMOVAL	\$10,000.00	\$0.00	\$17,085.33	-\$7,085.33
E 101-43100-42750	TRAINING	\$500.00	\$0.00	\$0.00	\$500.00
E 101-43100-42800	UTILITIES	\$16,500.00	\$1,093.09	\$9,647.13	\$6,852.87
E 101-43100-42900	OTHER OTHER CURRENT EXPENSE	\$1,500.00	\$198.55	-\$38.23	\$1,538.23
E 101-43100-43300	IMPROVE OTHER THAN BUILDINGS	\$137,000.00	\$0.00	\$0.00	\$137,000.00
E 101-43100-43400	MACHINERY AND EQUIPMENT	\$80,000.00	\$36.46	\$89,588.92	-\$9,588.92
E 101-43100-43410	COMPUTER SOFTWARE	\$2,000.00	\$0.00	\$0.00	\$2,000.00

## June 2023 Expenditure Report

Fund	Account Description	2023 Budget	June 2023 Amount	2023 YTD Amount	Balance
E 101-43100-43440	SUBSCRIPTIONS	\$0.00	\$0.00	\$0.00	\$0.00
		\$685,020.00	\$32,884.99	\$283,908.66	\$402,111.34
<b>DEPT 43700 CEMETERIES</b>					
E 101-43700-41100	SALARIES AND WAGES	\$10,000.00	\$1,320.32	\$4,159.49	\$5,840.51
E 101-43700-41103	OVERTIME WAGES	\$500.00	-\$225.00	-\$466.74	\$966.74
E 101-43700-41200	OASI	\$775.00	\$100.74	\$326.67	\$448.33
E 101-43700-41300	RETIREMENT	\$150.00	\$9.24	\$60.06	\$89.94
E 101-43700-42100	INSURANCE	\$300.00	\$28.34	\$184.29	\$115.71
E 101-43700-42150	INS-LIAB/PROP/WCOMP	\$1,525.00	\$0.00	\$1,762.01	-\$237.01
E 101-43700-42200	PROFESSIONAL SERVICES AND FEES	\$750.00	\$0.00	\$60.00	\$690.00
E 101-43700-42300	PUBLISHING	\$0.00	\$0.00	\$0.00	\$0.00
E 101-43700-42500	REPAIRS AND MAINTENANCE	\$7,000.00	\$730.33	\$812.59	\$6,187.41
E 101-43700-42600	SUPPLIES AND MATERIALS	\$5,000.00	\$535.37	\$1,532.39	\$3,467.61
E 101-43700-42800	UTILITIES	\$0.00	\$0.00	\$0.00	\$0.00
E 101-43700-42900	OTHER OTHER CURRENT EXPENSE	\$500.00	\$60.00	-\$60.00	\$560.00
E 101-43700-43400	MACHINERY AND EQUIPMENT	\$0.00	\$0.00	\$0.00	\$0.00
E 101-43700-43410	COMPUTER SOFTWARE	\$500.00	\$0.00	\$432.80	\$67.20
		\$27,000.00	\$2,559.34	\$8,803.56	\$18,196.44
<b>DEPT 44130 WEST NILE</b>					
E 101-44130-41100	SALARIES AND WAGES	\$500.00	\$0.00	\$0.00	\$500.00
E 101-44130-41103	OVERTIME WAGES	\$200.00	\$0.00	\$0.00	\$200.00
E 101-44130-41200	OASI	\$50.00	\$0.00	\$0.00	\$50.00
E 101-44130-41300	RETIREMENT	\$50.00	\$0.00	\$0.00	\$50.00
E 101-44130-42500	REPAIRS AND MAINTENANCE	\$250.00	\$0.00	\$0.00	\$250.00
E 101-44130-42600	SUPPLIES AND MATERIALS	\$2,500.00	\$0.00	\$0.00	\$2,500.00
E 101-44130-42900	OTHER OTHER CURRENT EXPENSE	\$0.00	\$0.00	\$0.00	\$0.00
		\$3,550.00	\$0.00	\$0.00	\$3,550.00
<b>DEPT 44400 HUMANE SOCIETY</b>					
E 101-44400-42900	OTHER OTHER CURRENT EXPENSE	\$200.00	\$0.00	\$0.00	\$200.00
E 101-44400-43430	ANIMALS	\$400.00	\$55.00	\$55.00	\$345.00
		\$600.00	\$55.00	\$55.00	\$545.00
<b>DEPT 45100 RECREATION</b>					
E 101-45100-41100	SALARIES AND WAGES	\$55,000.00	\$27,192.45	\$27,778.71	\$27,221.29
E 101-45100-41103	OVERTIME WAGES	\$500.00	\$1,858.78	\$1,858.78	-\$1,358.78
E 101-45100-41200	OASI	\$4,300.00	\$2,222.40	\$2,267.24	\$2,032.76
E 101-45100-42150	INS-LIAB/PROP/WCOMP	\$4,000.00	\$0.00	\$2,643.02	\$1,356.98
E 101-45100-42200	PROFESSIONAL SERVICES AND FEES	\$1,000.00	\$1,337.81	\$1,597.16	-\$597.16
E 101-45100-42300	PUBLISHING	\$500.00	\$0.00	\$0.00	\$500.00
E 101-45100-42400	RENTALS	\$0.00	\$0.00	\$0.00	\$0.00
E 101-45100-42500	REPAIRS AND MAINTENANCE	\$4,000.00	\$0.00	\$266.00	\$3,734.00
E 101-45100-42600	SUPPLIES AND MATERIALS	\$8,000.00	\$9,197.37	\$15,190.03	-\$7,190.03
E 101-45100-42629	OTHER MATERIALS FOR RESALE	\$7,000.00	\$1,693.42	\$1,693.42	\$5,306.58
E 101-45100-42700	TRAVEL AND CONFERENCE	\$100.00	\$0.00	\$0.00	\$100.00
E 101-45100-42750	TRAINING	\$2,000.00	\$192.50	\$1,020.00	\$980.00
E 101-45100-42800	UTILITIES	\$15,000.00	\$2,473.30	\$6,939.95	\$8,060.05
E 101-45100-42900	OTHER OTHER CURRENT EXPENSE	\$500.00	\$0.00	\$200.39	\$299.61

## June 2023 Expenditure Report

Fund	Account Description	2023 Budget	June 2023 Amount	2023 YTD Amount	Balance
E 101-45100-43300	IMPROVE OTHER THAN BUILDINGS	\$10,000.00	\$1,060.80	\$2,529.60	\$7,470.40
E 101-45100-43400	MACHINERY AND EQUIPMENT	\$1,000.00	\$0.00	\$0.00	\$1,000.00
E 101-45100-44100	PRINCIPAL	\$0.00	\$0.00	\$0.00	
E 101-45100-44200	INTEREST	\$0.00	\$0.00	\$0.00	\$0.00
		\$112,900.00	\$47,228.83	\$63,984.30	\$48,915.70
<b>DEPT 45200 PARKS</b>					
E 101-45200-41100	SALARIES AND WAGES	\$12,700.00	\$2,041.64	\$5,149.58	\$7,550.42
E 101-45200-41103	OVERTIME WAGES	\$275.00	\$0.00	\$2.62	\$272.38
E 101-45200-41106	LONGEVITY PAY	\$75.00	\$0.00	\$0.00	\$75.00
E 101-45200-41200	OASI	\$950.00	\$154.26	\$381.45	\$568.55
E 101-45200-41300	RETIREMENT	\$275.00	\$18.25	\$113.97	\$161.03
E 101-45200-42100	INSURANCE	\$600.00	\$46.16	\$300.04	\$299.96
E 101-45200-42150	INS-LIAB/PROP/WCOMP	\$3,850.00	\$0.00	\$4,405.03	-\$555.03
E 101-45200-42200	PROFESSIONAL SERVICES AND FEES	\$5,000.00	\$0.00	\$999.40	\$4,000.60
E 101-45200-42300	PUBLISHING	\$100.00	\$0.00	\$77.81	\$22.19
E 101-45200-42400	RENTALS	\$500.00	\$0.00	\$0.00	\$500.00
E 101-45200-42500	REPAIRS AND MAINTENANCE	\$3,500.00	\$0.00	\$124.98	\$3,375.02
E 101-45200-42600	SUPPLIES AND MATERIALS	\$7,000.00	\$4,640.46	\$7,240.45	-\$240.45
E 101-45200-42605	FERTILIZER & PEST CONTROL	\$1,500.00	\$123.28	\$179.16	\$1,320.84
E 101-45200-42620	AUTO EXPENSES	\$1,200.00	\$288.00	\$354.68	\$845.32
E 101-45200-42800	UTILITIES	\$16,500.00	\$1,304.98	\$2,610.47	\$13,889.53
E 101-45200-42900	OTHER OTHER CURRENT EXPENSE	\$500.00	\$265.00	\$265.00	\$235.00
E 101-45200-43100	LAND		\$149,260.23	\$150,260.23	
E 101-45200-43200	BUILDINGS	\$446,430.00	\$204,082.00	\$204,082.00	\$242,348.00
E 101-45200-43300	IMPROVE OTHER THAN BUILDINGS	\$0.00	\$0.00	\$5,140.00	-\$5,140.00
E 101-45200-43400	MACHINERY AND EQUIPMENT	\$2,000.00	\$0.00	\$0.00	\$2,000.00
E 101-45200-43500	DONATIONS	\$500.00	\$0.00	\$0.00	\$500.00
		\$503,455.00	\$362,224.26	\$381,686.87	\$272,028.36
<b>DEPT 45500 LIBRARIES</b>					
E 101-45500-41100	SALARIES AND WAGES	\$32,500.00	\$1,636.50	\$12,245.45	\$20,254.55
E 101-45500-41200	OASI	\$2,500.00	\$125.18	\$936.77	\$1,563.23
E 101-45500-42150	INS-LIAB/PROP/WCOMP	\$775.00	\$0.00	\$881.01	-\$106.01
E 101-45500-42200	PROFESSIONAL SERVICES AND FEES	\$0.00	\$0.00	\$0.00	\$0.00
E 101-45500-42300	PUBLISHING	\$200.00	\$128.00	\$128.00	\$72.00
E 101-45500-42400	RENTALS	\$0.00	\$0.00	\$0.00	\$0.00
E 101-45500-42500	REPAIRS AND MAINTENANCE	\$50.00	\$0.00	\$0.00	\$50.00
E 101-45500-42600	SUPPLIES AND MATERIALS	\$1,500.00	\$16.04	\$787.92	\$712.08
E 101-45500-42700	TRAVEL AND CONFERENCE	\$500.00	\$0.00	\$0.00	\$500.00
E 101-45500-42900	OTHER OTHER CURRENT EXPENSE	\$500.00	\$0.00	\$0.00	\$500.00
E 101-45500-43100	LAND	\$0.00	\$0.00	\$0.00	\$0.00
E 101-45500-43300	IMPROVE OTHER THAN BUILDINGS	\$0.00	\$0.00	\$0.00	\$0.00
E 101-45500-43400	MACHINERY AND EQUIPMENT	\$500.00	\$0.00	\$0.00	\$500.00
E 101-45500-43420	BOOKS	\$7,000.00	\$874.81	\$2,067.58	\$4,932.42
E 101-45500-43440	SUBSCRIPTIONS	\$0.00	\$0.00	\$0.00	\$0.00
		\$46,025.00	\$2,780.53	\$17,046.73	\$28,978.27
<b>DEPT 45800 MUSEUM</b>					
E 101-45800-42320	DUES	\$260.00	\$0.00	\$0.00	\$260.00

# June 2023 Expenditure Report

Fund	Account Description	2023 Budget	June 2023 Amount	2023 YTD Amount	Balance
	E 101-45800-42800 UTILITIES	\$2,500.00	\$0.00	\$0.00	\$2,500.00
		\$2,760.00	\$0.00	\$0.00	\$2,760.00
	<b>DEPT 46500 ECONOMIC DEVELOP AND ASSISTANC</b>				
	E 101-46500-42900 OTHER OTHER CURRENT EXPENSE	\$0.00	\$0.00	\$0.00	\$0.00
	E 101-46500-43500 DONATIONS	\$0.00	\$0.00	\$0.00	\$0.00
		\$0.00	\$0.00	\$0.00	\$0.00
	<b>DEPT 46520 PLANNING AND ZONING</b>				
	E 101-46520-41100 SALARIES AND WAGES	\$4,000.00	\$461.95	\$3,360.95	\$639.05
	E 101-46520-41200 OASI	\$175.00	\$0.00	\$4.59	\$170.41
	E 101-46520-42100 INSURANCE	\$1,980.00	\$0.00	\$280.00	\$1,700.00
	E 101-46520-42200 PROFESSIONAL SERVICES AND FEES	\$5,000.00	\$0.00	\$523.77	\$4,476.23
	E 101-46520-42300 PUBLISHING	\$300.00	\$45.29	\$56.32	\$243.68
	E 101-46520-42320 DUES	\$50.00	\$0.00	\$50.00	\$0.00
	E 101-46520-42600 SUPPLIES AND MATERIALS	\$200.00	\$0.00	\$0.00	\$200.00
	E 101-46520-42700 TRAVEL AND CONFERENCE	\$100.00	\$0.00	\$0.00	\$100.00
	E 101-46520-42900 OTHER OTHER CURRENT EXPENSE	\$75,000.00	\$3,183.11	\$23,889.65	\$51,110.35
		\$86,805.00	\$3,690.35	\$28,165.28	\$58,639.72
	<b>DEPT 46610 STORAGE BUILDING</b>				
	E 101-46610-42900 OTHER OTHER CURRENT EXPENSE	\$0.00	\$0.00	\$0.00	\$0.00
		\$0.00	\$0.00	\$0.00	\$0.00
	<b>DEPT 47140 DEBT SERVICE</b>				
	E 101-47140-44103 PRINCIPAL	\$70,000.00	\$0.00	\$0.00	\$70,000.00
	E 101-47140-44203 INTEREST	\$24,500.00	\$0.00	\$12,106.88	\$12,393.12
		\$94,500.00	\$0.00	\$12,106.88	\$82,393.12
	<b>DEPT 51100 OPERATING TRANSFERS OUT</b>				
	E 101-51100-42830 TRANSFERS OUT	\$155,000.00	\$0.00	\$0.00	\$155,000.00
		\$155,000.00	\$0.00	\$0.00	\$155,000.00
		\$2,622,505.00	\$532,608.97	\$1,242,723.64	\$1,530,041.59
<b>FUND 200 SPECIAL REVENUE</b>					
	<b>DEPT 46500 ECONOMIC DEVELOP AND ASSISTANC</b>				
	E 200-46500-42200 PROFESSIONAL SERVICES AND FEES	\$500.00	\$0.00	\$0.00	\$500.00
	E 200-46500-44300 UDAG EXPENSE	\$200.00	\$0.00	\$0.00	\$200.00
		\$700.00	\$0.00	\$0.00	\$700.00
	<b>DEPT 47140 DEBT SERVICE</b>				
	E 200-47140-44103 PRINCIPAL	\$0.00	\$0.00	\$0.00	\$0.00
	E 200-47140-44203 INTEREST	\$0.00	\$0.00	\$0.00	\$0.00
		\$0.00	\$0.00	\$0.00	\$0.00
		\$700.00	\$0.00	\$0.00	\$700.00
<b>FUND 201 LIBRARY</b>					
	<b>DEPT 45500 LIBRARIES</b>				
	E 201-45500-42830 TRANSFERS OUT	\$0.00	\$0.00	\$0.00	\$0.00
		\$0.00	\$0.00	\$0.00	\$0.00
		\$0.00	\$0.00	\$0.00	\$0.00
<b>FUND 211 LIQ, LODG, DINE SALES TAX FUND</b>					
	<b>DEPT 46500 ECONOMIC DEVELOP AND ASSISTANC</b>				
	E 211-46500-44100 PRINCIPAL	\$18,050.00	\$0.00	\$7,441.11	\$10,608.89
	E 211-46500-44200 INTEREST	\$9,250.00	\$0.00	\$3,896.64	\$5,353.36
		\$27,300.00	\$0.00	\$11,337.75	\$15,962.25
		\$27,300.00	\$0.00	\$11,337.75	\$15,962.25
<b>FUND 500 CAPITAL PROJECTS FUND</b>					
	<b>DEPT 41900 OTHER GENERAL GOVERNMENT</b>				
	E 500-41900-42200 PROFESSIONAL SERVICES AND FEES	\$0.00	\$0.00	\$0.00	\$0.00
	E 500-41900-42830 TRANSFERS OUT	\$0.00	\$0.00	\$0.00	\$0.00
	E 500-41900-43300 IMPROVE OTHER THAN BUILDINGS	\$0.00	\$0.00	\$29,689.48	-\$29,689.48

## June 2023 Expenditure Report

Fund	Account Description	2023 Budget	June 2023 Amount	2023 YTD Amount	Balance
	E 500-41900-43400 MACHINERY AND EQUIPMENT	\$0.00	\$0.00	\$0.00	\$0.00
		\$0.00	\$0.00	\$29,689.48	-\$29,689.48
		\$0.00	\$0.00	\$29,689.48	-\$29,689.48
<b>FUND 602 WATER FUND</b>					
<b>DEPT 43300 WATER</b>					
	E 602-43300-41100 SALARIES AND WAGES	\$73,400.00	\$6,095.24	\$37,596.10	\$35,803.90
	E 602-43300-41103 OVERTIME WAGES	\$7,100.00	\$244.86	\$2,026.14	\$5,073.86
	E 602-43300-41106 LONGEVITY PAY	\$250.00	\$0.00	\$86.35	\$163.65
	E 602-43300-41200 OASI	\$5,800.00	\$471.45	\$2,942.58	\$2,857.42
	E 602-43300-41300 RETIREMENT	\$4,600.00	\$380.41	\$2,377.35	\$2,222.65
	E 602-43300-42100 INSURANCE	\$13,650.00	\$1,071.88	\$6,967.19	\$6,682.81
	E 602-43300-42150 INS-LIAB/PROP/WCOMP	\$9,200.00	\$0.00	\$10,572.08	-\$1,372.08
	E 602-43300-42200 PROFESSIONAL SERVICES AND FEES	\$50,000.00	\$86.81	\$611.45	\$49,388.55
	E 602-43300-42300 PUBLISHING	\$750.00	\$22.81	\$197.10	\$552.90
	E 602-43300-42320 DUES	\$1,350.00	\$0.00	\$0.00	\$1,350.00
	E 602-43300-42400 RENTALS	\$500.00	\$0.00	\$0.00	\$500.00
	E 602-43300-42500 REPAIRS AND MAINTENANCE	\$30,000.00	\$72.67	\$1,009.59	\$28,990.41
	E 602-43300-42550 OFFICE EXPENSE	\$2,400.00	\$593.16	\$1,356.66	\$1,043.34
	E 602-43300-42600 SUPPLIES AND MATERIALS	\$30,000.00	\$15,987.06	\$31,236.38	-\$1,236.38
	E 602-43300-42610 UNIFORMS	\$450.00	\$0.00	\$134.85	\$315.15
	E 602-43300-42620 AUTO EXPENSES	\$5,000.00	\$89.88	\$677.28	\$4,322.72
	E 602-43300-42700 TRAVEL AND CONFERENCE	\$1,000.00	\$0.00	\$180.08	\$819.92
	E 602-43300-42750 TRAINING	\$1,000.00	\$0.00	\$0.00	\$1,000.00
	E 602-43300-42800 UTILITIES	\$56,300.00	\$3,975.47	\$19,635.16	\$36,664.84
	E 602-43300-42830 TRANSFERS OUT	\$50,000.00	\$0.00	\$0.00	\$50,000.00
	E 602-43300-42900 OTHER OTHER CURRENT EXPENSE	\$500.00	\$98.20	\$202.35	\$297.65
	E 602-43300-43100 LAND	\$0.00	\$0.00	\$0.00	\$0.00
	E 602-43300-43300 IMPROVE OTHER THAN BUILDINGS	\$75,000.00	\$0.00	\$19,676.00	\$55,324.00
	E 602-43300-43400 MACHINERY AND EQUIPMENT	\$61,000.00	\$40,036.45	\$59,930.77	\$1,069.23
	E 602-43300-43410 COMPUTER SOFTWARE	\$2,200.00	\$0.00	\$0.00	\$2,200.00
	E 602-43300-44200 INTEREST	\$34,200.00	\$0.00	\$39,188.91	-\$4,988.91
	E 602-43300-45700 DEPRECIATION	\$0.00	\$0.00	\$0.00	\$0.00
		\$515,650.00	\$69,226.35	\$236,604.37	\$279,045.63
		\$515,650.00	\$69,226.35	\$236,604.37	\$279,045.63
<b>FUND 604 SEWER FUND</b>					
<b>DEPT 43200 SANITATION</b>					
	E 604-43200-41100 SALARIES AND WAGES	\$73,000.00	\$6,026.21	\$37,139.87	\$35,860.13
	E 604-43200-41103 OVERTIME WAGES	\$7,100.00	\$240.24	\$2,036.03	\$5,063.97
	E 604-43200-41106 LONGEVITY PAY	\$250.00	\$0.00	\$100.00	\$150.00
	E 604-43200-41200 OASI	\$5,800.00	\$467.45	\$2,926.84	\$2,873.16
	E 604-43200-41300 RETIREMENT	\$4,500.00	\$375.99	\$2,356.57	\$2,143.43
	E 604-43200-42100 INSURANCE	\$13,650.00	\$1,071.88	\$6,967.19	\$6,682.81
	E 604-43200-42150 INS-LIAB/PROP/WCOMP	\$4,600.00	\$0.00	\$6,715.04	-\$2,115.04
	E 604-43200-42200 PROFESSIONAL SERVICES AND FEES	\$50,000.00	\$2,627.98	\$15,542.03	\$34,457.97
	E 604-43200-42300 PUBLISHING	\$400.00	\$14.11	\$50.29	\$349.71
	E 604-43200-42320 DUES	\$400.00	\$0.00	\$0.00	\$400.00
	E 604-43200-42400 RENTALS	\$1,000.00	\$0.00	\$0.00	\$1,000.00
	E 604-43200-42500 REPAIRS AND MAINTENANCE	\$35,000.00	\$3,008.30	\$14,035.74	\$20,964.26
	E 604-43200-42550 OFFICE EXPENSE	\$2,000.00	\$533.23	\$1,153.73	\$846.27
	E 604-43200-42600 SUPPLIES AND MATERIALS	\$15,000.00	\$392.04	\$2,485.60	\$12,514.40
	E 604-43200-42610 UNIFORMS	\$450.00	\$0.00	\$59.99	\$390.01
	E 604-43200-42620 AUTO EXPENSES	\$3,600.00	\$180.73	\$639.95	\$2,960.05
	E 604-43200-42700 TRAVEL AND CONFERENCE	\$500.00	\$0.00	\$0.00	\$500.00
	E 604-43200-42750 TRAINING	\$250.00	\$0.00	\$0.00	\$250.00

## June 2023 Expenditure Report

Fund	Account Description	2023 Budget	June 2023 Amount	2023 YTD Amount	Balance
E 604-43200-42800	UTILITIES	\$35,000.00	\$695.14	\$4,084.94	\$30,915.06
E 604-43200-42830	TRANSFERS OUT	\$90,000.00	\$0.00	\$0.00	\$90,000.00
E 604-43200-42900	OTHER OTHER CURRENT EXPENSE	\$0.00	\$16.45	\$38.85	-\$38.85
E 604-43200-43300	IMPROVE OTHER THAN BUILDINGS	\$20,000.00	\$0.00	\$0.00	\$20,000.00
E 604-43200-43400	MACHINERY AND EQUIPMENT	\$21,000.00	\$36.45	\$19,930.78	\$1,069.22
E 604-43200-43410	COMPUTER SOFTWARE	\$2,200.00	\$0.00	\$0.00	\$2,200.00
E 604-43200-44200	INTEREST	\$10,600.00	\$0.00	\$28,275.13	-\$17,675.13
E 604-43200-45700	DEPRECIATION	\$0.00	\$0.00	\$0.00	\$0.00
		\$396,300.00	\$15,686.20	\$144,538.57	\$251,761.43
		\$396,300.00	\$15,686.20	\$144,538.57	\$251,761.43

### FUND 610 ELECTRIC FUND

#### DEPT 43400 ELECTRICITY

E 610-43400-41100	SALARIES AND WAGES	\$143,700.00	\$11,903.26	\$73,061.72	\$70,638.28
E 610-43400-41103	OVERTIME WAGES	\$9,700.00	\$478.88	\$3,696.52	\$6,003.48
E 610-43400-41106	LONGEVITY PAY	\$1,650.00	\$0.00	\$800.00	\$850.00
E 610-43400-41200	OASI	\$11,500.00	\$930.37	\$5,823.35	\$5,676.65
E 610-43400-41300	RETIREMENT	\$9,000.00	\$742.92	\$4,653.50	\$4,346.50
E 610-43400-42100	INSURANCE	\$21,400.00	\$1,781.68	\$11,580.89	\$9,819.11
E 610-43400-42150	INS-LIAB/PROP/WCOMP	\$12,200.00	\$0.00	\$14,096.10	-\$1,896.10
E 610-43400-42200	PROFESSIONAL SERVICES AND FEES	\$20,000.00	\$590.81	\$722.97	\$19,277.03
E 610-43400-42300	PUBLISHING	\$500.00	\$14.11	\$50.30	\$449.70
E 610-43400-42320	DUES	\$1,550.00	\$0.00	\$1,197.00	\$353.00
E 610-43400-42500	REPAIRS AND MAINTENANCE	\$12,000.00	\$561.21	\$2,532.48	\$9,467.52
E 610-43400-42550	OFFICE EXPENSE	\$5,500.00	\$533.24	\$1,153.74	\$4,346.26
E 610-43400-42600	SUPPLIES AND MATERIALS	\$230,000.00	\$13,563.66	\$72,571.09	\$157,428.91
E 610-43400-42610	UNIFORMS	\$900.00	\$0.00	\$452.95	\$447.05
E 610-43400-42620	AUTO EXPENSES	\$5,500.00	\$561.01	\$1,915.30	\$3,584.70
E 610-43400-42629	OTHER MATERIALS FOR RESALE	\$1,250,000.00	\$88,382.05	\$548,792.21	\$701,207.79
E 610-43400-42700	TRAVEL AND CONFERENCE	\$1,500.00	\$0.00	\$433.95	\$1,066.05
E 610-43400-42750	TRAINING	\$1,500.00	\$0.00	\$495.00	\$1,005.00
E 610-43400-42800	UTILITIES	\$13,600.00	\$980.87	\$4,278.35	\$9,321.65
E 610-43400-42810	CONVERSION	\$0.00	\$0.00	\$0.00	\$0.00
E 610-43400-42830	TRANSFERS OUT	\$0.00	\$0.00	\$0.00	\$0.00
E 610-43400-42900	OTHER OTHER CURRENT EXPENSE	\$2,000.00	\$1,286.66	\$8,346.92	-\$6,346.92
E 610-43400-43300	IMPROVE OTHER THAN BUILDINGS	\$0.00	\$0.00	\$0.00	\$0.00
E 610-43400-43400	MACHINERY AND EQUIPMENT	\$116,500.00	\$108,836.45	\$128,355.78	-\$11,855.78
E 610-43400-43410	COMPUTER SOFTWARE	\$2,200.00	\$0.00	\$375.00	\$1,825.00
E 610-43400-44103	PRINCIPAL	\$0.00	\$0.00	\$0.00	\$0.00
E 610-43400-44200	INTEREST	\$0.00	\$0.00	\$0.00	\$0.00
E 610-43400-45700	DEPRECIATION	\$0.00	\$0.00	\$0.00	\$0.00
		\$1,872,400.00	\$231,147.18	\$885,385.12	\$987,014.88
		\$1,872,400.00	\$231,147.18	\$885,385.12	\$987,014.88

### FUND 612 SOLID WASTE FUND

#### DEPT 43250 SEWAGE COLLECTION AND DISPOSAL

E 612-43250-41100	SALARIES AND WAGES	\$46,600.00	\$4,524.00	\$22,365.01	\$24,234.99
E 612-43250-41103	OVERTIME WAGES	\$1,300.00	\$105.10	\$569.82	\$730.18
E 612-43250-41106	LONGEVITY PAY	\$150.00	\$0.00	\$0.00	\$150.00
E 612-43250-41200	OASI	\$3,700.00	\$345.45	\$1,698.39	\$2,001.61
E 612-43250-41300	RETIREMENT	\$2,550.00	\$206.42	\$1,263.16	\$1,286.84
E 612-43250-42100	INSURANCE	\$8,250.00	\$649.42	\$4,221.32	\$4,028.68
E 612-43250-42150	INS-LIAB/PROP/WCOMP	\$6,900.00	\$0.00	\$7,929.06	-\$1,029.06
E 612-43250-42200	PROFESSIONAL SERVICES AND FEES	\$2,000.00	\$86.82	\$218.99	\$1,781.01
E 612-43250-42300	PUBLISHING	\$2,000.00	\$110.11	\$178.30	\$1,821.70



# June 2023 Expenditure Report

Fund	Account Description	2023 Budget	June 2023 Amount	2023 YTD Amount	Balance
E 612-43250-42320	DUES	\$50.00	\$0.00	\$0.00	\$50.00
E 612-43250-42500	REPAIRS AND MAINTENANCE	\$8,000.00	\$315.78	\$1,465.71	\$6,534.29
E 612-43250-42550	OFFICE EXPENSE	\$1,500.00	\$533.25	\$1,153.75	\$346.25
E 612-43250-42600	SUPPLIES AND MATERIALS	\$7,000.00	\$392.06	\$1,672.85	\$5,327.15
E 612-43250-42610	UNIFORMS	\$900.00	\$388.45	\$611.88	\$288.12
E 612-43250-42620	AUTO EXPENSES	\$7,000.00	\$631.57	\$4,156.25	\$2,843.75
E 612-43250-42700	TRAVEL AND CONFERENCE	\$500.00	\$0.00	\$28.00	\$472.00
E 612-43250-42710	TIPPING FEES	\$58,000.00	\$6,138.33	\$25,931.37	\$32,068.63
E 612-43250-42800	UTILITIES	\$2,300.00	\$240.00	\$240.00	\$2,060.00
E 612-43250-42830	TRANSFERS OUT	\$40,000.00	\$0.00	\$0.00	\$40,000.00
E 612-43250-42900	OTHER OTHER CURRENT EXPENSE	\$500.00	\$0.00	\$600.00	-\$100.00
E 612-43250-43400	MACHINERY AND EQUIPMENT	\$500.00	\$36.46	\$305.84	\$194.16
E 612-43250-43410	COMPUTER SOFTWARE	\$2,200.00	\$0.00	\$0.00	\$2,200.00
E 612-43250-45700	DEPRECIATION	\$27,000.00	\$0.00	\$0.00	\$27,000.00
		\$228,900.00	\$14,703.22	\$74,609.70	\$154,290.30
		\$228,900.00	\$14,703.22	\$74,609.70	\$154,290.30
		<b>\$5,663,755.00</b>	<b>\$863,371.92</b>	<b>\$2,624,888.63</b>	<b>\$3,189,126.60</b>

# June 2023 Revenue Report

Fund	Account Number and Title	2023 Budget	2023 YTD Amount	June 2023 Amount	Balance
<b>GENERAL FUND</b>					
	R 101-00000-31100 GEN PROP TAXES	\$0.00	\$0.00	\$0.00	\$0.00
	R 101-00000-31110 GEN PROP TAXES CURRENT YEAR	\$1,018,615.00	\$552,366.69	\$45,205.08	\$466,248.31
	R 101-00000-31120 GEN PROP TAXES LAST YEAR	\$5,000.00	\$2,389.97	\$0.00	\$2,610.03
	R 101-00000-31130 GEN PROP TAXES PRIOR YR	\$1,000.00	\$0.00	\$0.00	\$1,000.00
	R 101-00000-31160 GEN PROP TAXES ALL PRIOR YEARS	\$0.00	\$0.00	\$0.00	\$0.00
	R 101-00000-31170 GEN PROP TAXES ON MOBILE HOMES	\$4,000.00	\$2,728.71	\$163.09	\$1,271.29
	R 101-00000-31190 GEN PROP TAXES ON OTHER	\$0.00	\$0.00	\$0.00	\$0.00
	R 101-00000-31300 GEN SALES AND USE TAXES	\$775,000.00	\$403,266.08	\$135,916.56	\$371,733.92
	R 101-00000-31500 AMUSEMENT TAXES	\$0.00	\$0.00	\$0.00	\$0.00
	R 101-00000-31900 PENALTY, INTEREST DELINQ TAXES	\$0.00	\$0.00	\$0.00	\$0.00
	R 101-00000-32000 LICENSES AND PERMITS	\$8,500.00	\$1,958.00	\$100.00	\$6,542.00
	R 101-00000-32400 VIDEO AND LOTTERY FEE	\$1,500.00	\$0.00	\$0.00	\$1,500.00
	R 101-00000-33100 FEDERAL GRANTS	\$334,825.00	\$0.00	\$0.00	\$334,825.00
	R 101-00000-33140 LANDWATER CONSERVATION GRANT	\$0.00	\$0.00	\$0.00	\$0.00
	R 101-00000-33499 OTHER STATE GRANTS	\$45,000.00	\$0.00	\$0.00	\$45,000.00
	R 101-00000-33500 STATE SHARE REVENUE	\$14,500.00	\$7,267.35	\$0.00	\$7,232.65
	R 101-00000-33510 BANK FRANCHISE TAX	\$15,000.00	\$14,312.09	\$0.00	\$687.91
	R 101-00000-33530 LIQUOR TAX REVERSION	\$0.00	\$0.00	\$0.00	\$0.00
	R 101-00000-33540 MOTOR VEHICLE LICENSES	\$29,000.00	\$12,525.86	\$3,012.10	\$16,474.14
	R 101-00000-33590 LOCAL GOV HWY AND BRIDGE FUND	\$17,000.00	\$14,930.50	\$431.55	\$2,069.50
	R 101-00000-33590 OTHER STATE SHARED REVENUE	\$10,000.00	\$1,586.64	\$102.92	\$8,413.36
	R 101-00000-33830 COUNTY WHEEL TAX	\$6,500.00	\$3,520.81	\$828.47	\$2,979.19
	R 101-00000-34000 CHARGES FOR GOODS AND SERVICES	\$500.00	\$71.34	\$46.94	\$428.66
	R 101-00000-34110 ZONING AND SUBDIVISION FEES	\$5,000.00	\$1,911.00	\$549.00	\$3,089.00
	R 101-00000-34200 PUBLIC SAFETY	\$500.00	\$0.00	\$0.00	\$500.00
	R 101-00000-34290 OTHER PUBLIC SAFETY	\$200.00	\$0.00	\$0.00	\$200.00
	R 101-00000-34520 ANIMAL CONTROL AND SHELTER FEE	\$500.00	\$210.00	\$40.00	\$290.00
	R 101-00000-34620 SWIMMING POOL FEES	\$0.00	\$1,910.23	\$1,500.28	-\$1,910.23
	R 101-00000-34621 DAILY FEES	\$8,000.00	\$3,928.48	\$3,223.65	\$4,071.52
	R 101-00000-34622 SINGLE MEMBERSHIPS	\$0.00	\$0.00	\$0.00	\$0.00
	R 101-00000-34623 FAMILY MEMBERSHIPS	\$10,000.00	\$14,706.23	\$6,081.78	-\$4,706.23
	R 101-00000-34624 SWIMMING LESSONS	\$2,500.00	\$4,918.87	\$3,744.46	-\$2,418.87
	R 101-00000-34640 CONCESSIONS	\$10,000.00	\$7,570.76	\$6,429.66	\$2,429.24
	R 101-00000-34670 SIGN ADVERTISEMENT FEES	\$200.00	\$0.00	\$0.00	\$200.00
	R 101-00000-34690 OTHER CULTURE-RECREATION	\$5,000.00	\$1,914.67	\$1,284.40	\$3,085.33
	R 101-00000-35000 FINES AND FORFEITS	\$1,000.00	\$825.00	\$50.00	\$175.00
	R 101-00000-35100 COURT FINES AND FORFEITS	\$250.00	\$39.67	\$0.00	\$210.33
	R 101-00000-36000 MISCELLANEOUS REVENUE	\$50.00	\$1,081.43	\$1,000.00	-\$1,031.43
	R 101-00000-36100 INTEREST EARNED	\$10,000.00	\$10,933.51	\$0.00	-\$933.51
	R 101-00000-36200 RENTALS	\$3,600.00	\$1,500.00	\$300.00	\$2,100.00
	R 101-00000-36310 PRINCIPAL COLLECTED BY COUNTY	\$3,800.00	\$2,263.48	\$0.00	\$1,536.52
	R 101-00000-36320 INT AND PENALTY COLLECT COUNTY	\$2,400.00	\$0.00	\$0.00	\$2,400.00
	R 101-00000-36330 PRINCIPAL COLLECT BY MUNICIPAL	\$0.00	\$500.00	\$0.00	-\$500.00
	R 101-00000-36700 CONTRIB AND DONAT FROM PRIVATE	\$0.00	\$3,170.12	\$125.00	-\$3,170.12
	R 101-00000-36900 OTHER MISCELLANEOUS REVENUE	\$0.00	\$0.00	\$0.00	\$0.00
	R 101-00000-36810 SALE OF LOTS	\$5,000.00	\$3,500.00	\$0.00	\$1,500.00
	R 101-00000-36820 GRAVE-DIGGING CHARGES	\$3,000.00	\$2,000.00	\$700.00	\$1,000.00
	R 101-00000-38750 CABLE TV FRANCHISE FEE	\$11,000.00	\$8,841.89	\$209.27	\$2,158.11
	R 101-00000-39110 OPERATING TRANSFERS IN	\$160,365.00	\$0.00	\$0.00	\$160,365.00
	R 101-00000-39121 BONDS PROCEEDS	\$94,200.00	\$51,685.50	\$4,203.14	\$42,514.50
	R 101-00000-39130 SALE OF GENERAL FIXED ASSETS	\$0.00	\$0.00	\$0.00	\$0.00
	R 101-00000-39140 COMP FOR LOSS OR DAM GEN FIXED ASSET	\$0.00	\$0.00	\$0.00	\$0.00
		\$2,622,505.00	\$1,140,334.88	\$215,247.25	\$1,482,170.12
<b>SPECIAL REVENUE</b>					
	R 200-00000-36000 MISCELLANEOUS REVENUE	\$0.00	\$0.00	\$0.00	\$0.00
	R 200-00000-36100 INTEREST EARNED	\$50.00	\$0.00	\$0.00	\$50.00
	R 200-00000-36340 INT AND PENALTY COLLECT MUNICI	\$3,500.00	\$585.91	\$0.00	\$2,914.09
		\$3,550.00	\$585.91	\$0.00	\$2,964.09

# June 2023 Revenue Report

Fund	Account Number and Title	2023 Budget	2023 YTD Amount	June 2023 Amount	Balance
<b>LIQ, LODG, DINE SALES TAX FUND</b>					
	R 211-00000-31400 GROSS RECEIPTS BUSINESS TAXES	\$31,000.00	\$12,821.66	\$4,627.64	\$18,178.34
		\$31,000.00	\$12,821.66	\$4,627.64	\$18,178.34
<b>CAPITAL PROJECTS FUND</b>					
	R 500-00000-39121 BONDS PROCEEDS	\$0.00	\$0.00	\$0.00	\$0.00
		\$0.00	\$0.00	\$0.00	\$0.00
<b>WATER FUND</b>					
	R 602-00000-36100 INTEREST EARNED	\$50.00	\$22.15	\$0.00	\$27.85
	R 602-00000-36900 OTHER MISCELLANEOUS REVENUE	\$0.00	\$0.00	\$0.00	\$0.00
	R 602-00000-38100 WATER REVENUE	\$0.00	\$1,673.02	\$800.58	-\$1,673.02
	R 602-00000-38110 METERED AND FLAT RATE WATER	\$515,000.00	\$262,227.86	\$60,569.36	\$252,772.14
	R 602-00000-38120 BULK WATER SALES	\$500.00	\$0.00	\$0.00	\$500.00
	R 602-00000-38130 SURCHARGE	\$28,000.00	\$14,385.58	\$2,422.51	\$13,614.42
	R 602-00000-38190 OTHER WATER REVENUE	\$0.00	\$0.00	\$0.00	\$0.00
	R 602-00000-38295 PENALTY CHARGES	\$2,000.00	\$877.60	\$166.83	\$1,122.40
	R 602-00000-38380 UTIL CONNECT FEES	\$1,500.00	\$1,000.00	\$250.00	\$500.00
	R 602-00000-39100 OTHER FINANCING SOURCES	\$0.00	\$0.00	\$0.00	\$0.00
	R 602-00000-39110 OPERATING TRANSFERS IN	\$40,000.00	\$0.00	\$0.00	\$40,000.00
	R 602-00000-39130 SALE OF GENERAL FIXED ASSETS	\$0.00	\$0.00	\$0.00	\$0.00
		\$587,050.00	\$280,186.21	\$64,209.28	\$306,863.79
<b>SEWER FUND</b>					
	R 604-00000-36000 MISCELLANEOUS REVENUE	\$0.00	\$0.00	\$0.00	\$0.00
	R 604-00000-38130 SURCHARGE	\$45,000.00	\$22,717.61	\$3,788.12	\$22,282.39
	R 604-00000-38295 PENALTY CHARGES	\$2,000.00	\$788.95	\$133.51	\$1,211.05
	R 604-00000-38310 SEWER CHARGES	\$348,000.00	\$185,733.69	\$31,088.43	\$162,266.31
	R 604-00000-38380 UTIL CONNECT FEES	\$1,500.00	\$1,000.00	\$250.00	\$500.00
	R 604-00000-38390 OTHER SEWER REVENUE	\$0.00	\$0.00	\$0.00	\$0.00
	R 604-00000-39100 OTHER FINANCING SOURCES	\$0.00	\$0.00	\$0.00	\$0.00
	R 604-00000-39110 OPERATING TRANSFERS IN	\$0.00	\$0.00	\$0.00	\$0.00
	R 604-00000-39130 SALE OF FIXED ASSET	\$0.00	\$0.00	\$0.00	\$0.00
		\$396,500.00	\$210,240.25	\$35,260.06	\$186,259.75
<b>ELECTRIC FUND</b>					
	R 610-00000-36000 MISCELLANEOUS REVENUE	\$0.00	\$1.63	\$1.63	-\$1.63
	R 610-00000-36100 INTEREST EARNED	\$5,000.00	\$0.00	\$0.00	\$5,000.00
	R 610-00000-38210 METERED SALES	\$1,950,000.00	\$976,407.59	\$166,945.09	\$973,592.41
	R 610-00000-38220 SALE OF SUPPLIES AND MATERIALS	\$0.00	\$0.00	\$0.00	\$0.00
	R 610-00000-38240 RETURN CHECK CHGS	\$500.00	\$0.00	\$0.00	\$500.00
	R 610-00000-38290 OTHER ELECTRIC REVENUE	\$52,000.00	\$45,974.45	\$28,634.80	\$6,025.55
	R 610-00000-38295 PENALTY CHARGES	\$7,000.00	\$2,534.79	\$441.78	\$4,465.21
	R 610-00000-38296 RECONNECTION CHGS	\$2,000.00	\$1,625.00	\$325.00	\$375.00
	R 610-00000-38380 UTIL CONNECT FEES	\$1,000.00	\$1,000.00	\$250.00	\$0.00
	R 610-00000-39110 OPERATING TRANSFERS IN	\$66,000.00	\$0.00	\$0.00	\$66,000.00
	R 610-00000-39130 SALE OF GENERAL FIXED ASSETS	\$0.00	\$0.00	\$0.00	\$0.00
		\$2,083,500.00	\$1,027,543.46	\$196,598.30	\$1,055,956.54
<b>SOLID WASTE FUND</b>					
	R 612-00000-38180 SALE OF SUPPLIES AND MATERIALS	\$0.00	\$0.00	\$0.00	\$0.00
	R 612-00000-38295 PENALTY CHARGES	\$1,000.00	\$443.32	\$91.20	\$558.68
	R 612-00000-38800 SOLID WASTE REVENUE	\$228,000.00	\$116,232.48	\$19,526.97	\$111,767.52
	R 612-00000-38810 COLLECTION FEES	\$0.00	\$0.00	\$0.00	\$0.00
	R 612-00000-38820 LANDFILL FEES	\$5,000.00	\$1,316.24	\$0.00	\$3,683.76
	R 612-00000-38890 OTHER SOLID WASTE REVENUE	\$1,500.00	\$5,686.42	\$0.00	(\$4,186.42)
	R 612-00000-39130 SALE OF GENERAL FIXED ASSETS	\$0.00	\$0.00	\$0.00	\$0.00
		\$235,500.00	\$123,678.46	\$19,618.17	\$111,821.54
		\$5,959,805.00	\$2,795,390.83	\$535,560.70	\$3,164,214.17

# Preliminary Engineering Report

Wastewater Treatment Facility Evaluation  
City of Elk Point, South Dakota

McLaury Engineering, Inc.  
July 2023

Project No. 0M2.126965



**BOLTON  
& MENK**

Real People. Real Solutions.

**Submitted by:**

Bolton & Menk, Inc.  
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# Certification

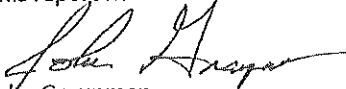
## Preliminary Engineering Report Wastewater Treatment Facility Evaluation

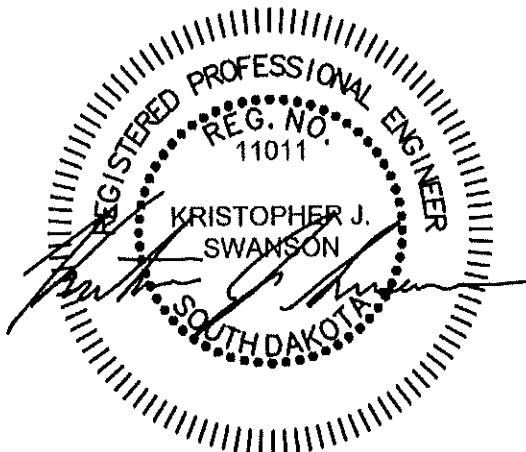
For

McLaury Engineering, Inc.  
City of Elk Point, South Dakota  
OM2.126965

July 2023

This report has been written and checked by:

  
John Graupman



### PROFESSIONAL ENGINEER:

I hereby certify that this engineering document was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of South Dakota.

7/31/2023  
(Date)

Printed or typed name Kristopher J. Swanson

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## Appendix

- Appendix A: City of Elk Point Surface Water Discharge Permit
- Appendix B: Pump Runtime Data
- Appendix C: Statement of Basis from SDDANR

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## I. INTRODUCTION

### A. Purpose

The City of Elk Point has consulted with Bolton & Menk, Inc. to develop a Preliminary Engineering Report for wastewater system improvements to meet future NPDES permit limits. This report provides the city with recommendations for wastewater treatment facility improvements to maintain compliance with current and known future discharge limits. Recommendations are based on input from the City staff and an evaluation of the existing facility in accordance with current design practices. This Preliminary Engineering Report aims to provide the City of Elk Point and the South Dakota Department of Agriculture and Natural Resources with information and recommendations for potential improvements to the City's wastewater treatment system.

### B. Background

Wastewater produced throughout the City of Elk Point is conveyed to the southwest of town to the lagoon treatment facility. The treatment facility was originally designed for continuous discharge, but after upgrades in 2005, it began to operate as an intermittent discharge facility. The facility did so under the premise that using the aerators and weather conditions, enough water would be evaporated to stop continuous discharging. The facility operates under Surface Water Discharge Permit No. SD0022080, the full permit can be seen in Appendix A.

There are no current significant industrial users (SIUs) in Elk Point; therefore, most wastewater is produced from households and small businesses in town. In the past several years, the city has had issues treating current wastewater loads. BOD<sub>5</sub>, TSS, total and fecal coliforms, ammonia, and pH limits were all exceeded at least once from June 2017 to April 2020. The city has had issues with odors at the lagoon as well. Because of these considerations, along with the age and condition of the existing treatment facility, the city has hired Bolton & Menk, Inc. to develop this Preliminary Engineering Report and provide recommendations for future treatment options.

### C. Report Organization

This Preliminary Engineering Report organized with the following sections:

**Section 1 – Introduction:** Introduces the background and purpose of the report.

**Section II – Design Considerations:** Outlines and discuss the design parameters and considerations used to develop design alternatives and cost estimates for each alternative.

**Section III – Existing Wastewater Facilities:** Describes the treatment technologies, performance, and condition of the existing treatment facility.

**Section IV – Alternative Design Concepts:** Present and discusses the possible design alternatives needed to meet the NPDES Permit Compliance Schedule.

**Section V – Financial Considerations:** Provides cost opinions for each proposed alternative.

**Section VI – Recommendations and Financing Options:** Provides Bolton & Menk's recommendation for Elk Point's wastewater system improvement as well as project financing options.

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## II. DESIGN CONDITIONS

### A. General

This section of the report discusses the following design considerations: location, planning period, population, wastewater flow rates, and wastewater loadings. These considerations are an essential part of the design process that helps establish treatment alternatives and recommendations.

### B. Location

The City of Elk Point is the location of focus for the wastewater treatment system improvements discussed herein. The City of Elk Point is in Union County, South Dakota. The City's wastewater treatment facility is located approximately 1.5 miles southwest of the Elk Point city limits, past Interstate 29. Figure 2.1 shows the planning area encompassed by this report.

### C. Planning Period

Wastewater treatment facilities are typically designed based on a 20-year planning period. It is generally not feasible to make frequent changes in the capacity of a wastewater treatment facility. The design year of 2042 is used as the planning year in the basis of this design. Projected wastewater flows and loadings are determined using a combination of population trends and expected commercial and industrial growth.

### D. Population Projections

The City of Elk Point provided population projections and demographic information to aid in understanding current and future wastewater demands. Table 2.1 shows different expected populations based on historic growth. As shown, there was a large decrease in Elk Point's population from 1980 to 1990, but since then the city's population has increased steadily. For future design flow consideration, the 20-year percent change population of 2,695 persons will be used. It is the largest population estimate of the four presented by the city, and therefore, the most conservative.

Table 2.1: Elk Point Population Projections		
Year	Census Population	Population Estimate
1960	1,378	
1970	1,372	
1980	1,661	
1990	1,423	
2000	1,714	
2010	1,963	
2020	2,149	
2030		2,422
2040		2,695
Note: Elk Point Population Projections were provided by the City of Elk Point. Original values have not been altered in this report.		

Table 2.2 shows the age demographics for the City of Elk Point in 2010 and 2019. As shown, a large percentage of the population is between the ages of 20 and 54, reinforcing the city's growth estimates. This indicates many young families in the city, likely leading to population growth.

Table 2.2: Elk Point Age Demographics					
Year	Age				Total
	0-19	20-54	55-74	75 and Over	
2010	627	836	330	170	1,963
2019	701	883	359	233	2,176
Note: Elk Point Age Demographics were provided by the City of Elk Point. Original values have not been altered in this report.					

#### E. Wastewater Flows

##### 1. Wastewater Design Flows

Wastewater flows are one of the main components needed to determine wastewater system alternatives for the City of Elk Point. Historical flows, existing design flows, and 20-year design flows are analyzed and calculated using historical raw wastewater data as well as using population projections.

Wastewater in the City of Elk Point is generated in homes and small businesses. There are no current industrial users in the city. Wastewater in the City is also derived from external sources such as infiltration and inflow (I&I) of groundwater or stormwater into the collection system. Wastewater flows vary depending on the time of day, the day of the week, and the season. Daily fluctuations in flow are typical and termed diurnal flow. Seasonal variations in flow are due to fluctuations in rainfall trends.

Due to the wide disparity of flows, many flows are used to accurately design or upgrade a wastewater treatment facility. The flow rates generally used in the design are average dry weather flow (ADW), average wet weather flow (AWW), maximum day wet weather flow (MWW), and peak hourly wet weather flow (PHWW).

Average wet weather flow (AWW) is the average flow for the wettest 180 consecutive days for a controlled discharge lagoon like the City of Elk Point operates. AWW flow includes population water usage, inflow that occurs due to precipitation and/or snowmelt, and infiltration due to high groundwater. AWW flow typically occurs during the spring and early summer when precipitation and snowmelt are prominent.

Maximum wet weather flow (MWW) is the maximum flow received in a 24-hour period. MWW flow, like AWW flow, includes both per capita usages along with inflow and infiltration.

Peak hourly wet weather flow (PHWW) is the total maximum flow received for one hour. This occurs when domestic, commercial, and industrial discharges are at or near their peaks, groundwater is high, and runoff and infiltration are occurring. PHWW flow is generally used to design collection system components to ensure the surcharging and wastewater backups do not occur. Due to its rarity, it is not economical to design most treatment processes to adequately handle PHWW flow as it would vastly increase infrastructure and equipment requirements.

## 2. Historical Design Flows

The wastewater produced throughout the City of Elk Point is conveyed to the southwest of town to the lagoon treatment facility. The lagoon cells were constructed in 1968, and aeration was added to the facility in 2004. The original aeration process used a total of 18 surface aerators, 10 in Cell No. 1 and 8 in Cell No. 2. Sometime after this, the city switched from surface aerators to five Venturi pump aerators.

The treatment facility was originally designed for continuous discharge, but after upgrades in 2005, it began to operate as an intermittent discharge facility. The facility did so under the premise that using the aerators and weather conditions, enough water would be evaporated to stop the continuous discharge.

The system is capable of chlorination and dechlorination using hypochlorite and sodium bisulfite. Wastewater flows from Cell No. 1 to Cell No. 3 to Cell No. 2 before being discharged to an unnamed tributary of the Missouri River.

The system was originally designed for a hydraulic loading of 363,563 gpd average day, 727,127 gpd max day, and 1,266,055 gpd at peak hour. The design average organic loading is 652 pounds per day of BOD<sub>5</sub>. According to Elk Point's O&M Manual from 2002, the average dry weather flow is 361,730 gpd. The existing treatment facility was designed for an equivalent population of 2,965 with additional capacity for industries. The wastewater usage in 2021 was well under the design average dry weather flow of 361,730 gpd. Table 2.3 shows a summary of the design points.

Table 2.3: Elk Point Design Points	
Average Day Flow (gpd)	363,563
Max Day Flow (gpd)	727,127
Peak Hourly Flow (gpd)	1,266,055
Organic Load, BOD <sub>5</sub> (lbs/day)	652
Design Population (capita)	2,965

## 3. Existing Wastewater Flows

The City of Elk Point provided water and wastewater usage for each month in 2021. Table 2.4 shows the monthly wastewater usage from residential and commercial users in Elk Point. The average water usage was 57 gallons per day per capita. This is lower than expected residential wastewater usage as wastewater treatment facilities are normally designed for 100 gallons per day per capita under the Ten States Standards. Water usage was 108 gallons per day per capita, indicating a discrepancy between water and wastewater use.

The current wastewater usage in 2021 was below 150,000 gpd each month. According to the 2005 O&M Manual, the average dry weather flow was designed at 361,730 gpd. The recorded wastewater flows were far below this value, indicating either possible water loss or flow metering discrepancies. The 2005 flow design point from the O & M manual was used because Elk Point's current NPDES permit does not outline existing design flows. The City is required to report wastewater flows but does not have current wastewater flow limits according to their NPDES permit.



Table 2.4: Wastewater Usage, City of Elk Point				
Year 2021	Gallons	Million Gallons (MG)	Gallons per Day (gpd)	Million Gallons per Day (MGD)
January	2,558,817	2.56	85,294	0.09
February	3,580,383	3.58	119,346	0.12
March	4,162,280	4.16	138,743	0.14
April	3,822,128	3.82	127,404	0.13
May	3,321,732	3.32	110,724	0.11
June	3,547,773	3.55	118,259	0.12
July	3,699,264	3.70	123,309	0.12
August	4,602,083	4.60	153,403	0.15
September	3,517,337	3.52	117,245	0.12
October	3,801,883	3.80	126,729	0.13
November	3,787,556	3.79	126,252	0.13
December	4,475,013	4.48	149,167	0.15
<b>Total</b>	<b>44,876,249</b>	<b>44.88</b>		
Gallons per Capita per Day	57			

Table 2.5 shows the total wastewater pumped per year at each of the lift stations. These values were estimated using pump runtime hours provided by the city, pump runtime data can be found in Appendix B. The pumps were assumed to operate at their design point, but it is likely that their pumping rate is lower. For example, each pump in the Wurtz (Main) lift station is designed for 800 gpm, but the true capacity is likely lower due to aging and equipment wear. Field testing would be required to accurately determine the pumping rate of each lift station. The total wastewater pumped at the Wurtz (Main) lift station is higher than the total wastewater usage estimated by the city. Approximately 13 million gallons were unaccounted for. This indicates that there may be an issue with current wastewater flow metering or there is inflow and infiltration (I&I) or unregistered wastewater flow to the system.

Table 2.5: Total Wastewater Pumped per Year (MG)						
Year	Dunham Lift Station	Kum and Go Lift Station	Green Street Lift Station	West End Lift Station	Sum of 4 Area Lift Stations	Wurtz (Main) Lift Station
2019	13.20	0.36	2.33	3.30	19.2	86.6
2020	14.27	0.35	1.94	4.06	20.6	59.5
2021	14.33	0.55	1.31	7.82	24.0	58.2



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a) Industrial

There are no current significant industrial users (SIUs) in the City of Elk Point.

b) Satellite Communities

There are no current satellite communities that contribute wastewater flow to the City of Elk Point.

4. 20 Year Design Flows

Design flows are determined based on existing wastewater flow conditions, existing industrial contributions, and anticipated industrial, commercial, and residential growth. Wastewater discharged to the Elk Point treatment system is currently derived from residential and small commercial users. There is no indication that any SIU will operate in Elk Point in the next 20 years. It is assumed that the flow from commercial users will not substantially increase. Therefore, flow projections are based primarily off population projections. Flow projections based on different design assumptions are shown in Table 2.6.

<b>Table 2.6: 20-Year Design Flows for Various Alternatives</b>			
<b>Parameter</b>	<b>Flow (Gallons)</b>		
	<b>Based on 2021 Wastewater Usage per Capita</b>	<b>Based on Ten States Standards Design</b>	<b>2005 Design Points</b>
Average Dry Weather (ADW) Flow			361,730
Average Wet Weather (AWW) Flow	153,615	269,500	363,563
Peak Day Wet Weather (PDWW) Flow	307,230	539,000	727,127
Peak Hourly Wet Weather (PHWW) Flow	614,460	1,078,000	1,266,055
Peak Instantaneous Wet Weather (PIWW) Flow			

- Based on Existing Flows

The value of 153,615 gallons per day was estimated using current wastewater usage per capita and the estimated future population of Elk Point. In 2021, the average wastewater usage was 57 gallons per day per capita. It was assumed that wastewater usage would remain consistent over the next 20-year period. The 2042 estimated population was 2695 persons. Upon multiplying the population by per capita usage, the average wet weather flow was estimated.

A peaking factor of 2 was used to find the Peak Day Wet Weather Flow and a peaking hour of 4 was used to find the Peak Hourly Wet Weather Flow. The peaking factors were taken from the previous design done in 2005.

- Based on 10-States Standards Design

The value of 269,500 gallons per day was estimated using the Ten States Standard Recommendation on wastewater design. The standard recommends using 100 gallons per capita per day for wastewater flows where the daily flows are difficult to measure or unknown. Multiplying this per capita value and the

estimated 2695 population results in an average wet weather flow of 269,500 gallons per day.

A peaking factor of 2 was used to find the Peak Day Wet Weather Flow and a peaking factor of 4 was used to find the Peak Hourly Wet Weather Flow. The peaking factors were taken from the previous design done in 2005.

- 2005 Design Points

The 2005 design point was 361,730 gallons per day at average dry weather flow. It is unknown how this value was estimated. A peaking factor of 2 was used to find the Peak Day Wet Weather Flow and a peaking factor of 4 was used to find the Peak Hourly Wet Weather Flow. The text "Wastewater Engineering Treatment and Resource Recovery" by Metcalf and Eddy recommends a peaking factor of 4 for cities with populations under 5000 persons and the Ten States Wastewater Standards recommends a peaking factor of approximately 3.5 for Elk Point's future population of 2695 persons. Therefore, the peaking factors used in the 2005 design are appropriate.

#### F. Wastewater Loadings

Wastewater loadings are another main component, besides flow, needed to determine wastewater system alternatives for the City of Elk Point. Historical loadings, existing design loadings, and 20-year design loadings are analyzed and calculated using historical raw wastewater data contained in the city's operating reports as well as using population projections.

The City of Elk Point's wastewater treatment facility received pollutant loading contributions from residential and commercial users. There are no current industrial users, and none are expected within the next 20 years.

Many different types of pollutants can end up in wastewater. The most common pollutant parameters that are monitored and regulated are 5-day biochemical oxygen demand (BOD<sub>5</sub>) or 5-day carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>), total suspended solids (TSS), total phosphorus (TP), Total Kjeldahl Nitrogen (TKN), and pH. All these pollutant parameters are reported by Elk Point as per their NPDES permit. However, only BOD<sub>5</sub> and TSS are regulated. Therefore, only BOD<sub>5</sub> and TSS design loadings will be examined in this report.

Five-day biochemical oxygen demand (BOD<sub>5</sub>) is a measurement that shows how much oxygen is required by microorganisms to stabilize organic materials in the wastewater. Microorganisms will consume organic matter to reduce BOD<sub>5</sub>. The BOD<sub>5</sub> test shows how much oxygen is needed by organisms in a 5-day period at 20 degrees Celsius.

Total suspended solids (TSS) measure the amount of solids that can be retained upon filtration. Solids in wastewater typically include grit and organic matter that can be both settleable and non-settleable. TSS is generally removed in lagoon systems by settling and in mechanical systems by screening and microbial processes.

##### 1. Historical Monitoring Data

Table 2.7 shows the average wastewater effluent quality from 2017 to 2020. The average BOD<sub>5</sub> concentrations in 2020 were higher than those from 2017-2019, exceeding both the 30-Day Average and 7-Day Average limit numbers set in Elk Point's NPDES permit. The average TSS concentration was lower in 2020 than in previous years but still exceeded the 30-Day Average number. The average E. Coli concentration in 2020 was lower than the 2019 average and falls well below the 30-

Day Average Limit and Daily Maximum Limit. The average total coliform in 2020 decreased from 2018 and 2019 but is still above the 30-Day Average Limit; it is well below the Daily Maximum Limit. Ammonia is monitored as required by Elk Point's NPDES permit. Average ammonia concentrations increased each year from 2017 to 2020. The average pH for each of the four years is between the required 6.5 and 9.0 limits. The average pH in 2020 is lower than the average pH of the other three years.

Year	BOD <sub>5</sub> (mg/L)	Total Suspended Solids (mg/L)	E. Coli (#/100 mL)	Total Coliform (#/100 mL)	Fecal Coliform (#/100 mL)	Ammonia Nitrogen (NH <sub>3</sub> -N) (mg/L)	pH
2017	27	48	21	2,182	N/A	0.3	8.6
2018	24	52	7	61,372	8.5	2.8	8.7
2019	32	41	3,548	23,810	2,800	4.0	8.2
2020	58	37	11	7,272	N/A	5.5	8.0

Based on pump runtime data, the influent BOD<sub>5</sub> loading per acre of the pond was estimated to be 88.7 lbs. of BOD<sub>5</sub> per acre per day. This is higher than the normal design range of 15-35 lbs. of BOD<sub>5</sub> per acre per day for controlled-discharge facultative treatment pond systems as outlined in the Ten States Standards. The Elk Point treatment system can likely handle greater than 35 lbs. of BOD<sub>5</sub> per acre per day, as it uses aeration as a part of the treatment process; however, the current BOD<sub>5</sub> load per acre per day is likely too high based on current effluent concentrations and field observations. The calculations used to find the BOD<sub>5</sub> loading per acre can be seen below.

$$\frac{8.34 * 58.24 \text{ MG} * 366.83 \text{ mg/L}}{365 \text{ days}} = 488 \frac{\text{lbs}}{\text{day}}$$

$$488 \frac{\text{lbs}}{\text{day}} \div 5.5 \text{ acres} = 88.7 \text{ lbs per acre per day}$$

Prior to using Venturi pumps as aerators, 18 surface aerators were used. The decision to change aeration equipment was made because the surface aerators were prone to flipping and more difficult to maintain. It is possible this equipment switch decreased the treatment capacity of the system. When the system was originally designed, the 13.0-acre pond was the first in the treatment process, followed by smaller ponds. Sometime prior to 2005, this order was reversed, and the 13.0-acre pond became the final pond in the treatment process. This decision decreased the treatment capacity of the system, as indicated by the calculations above. By making a smaller pond the primary pond, the city's wastewater treatment capacity was reduced, and odor risk was increased.

Table 2.8 shows the number of times NPDES limits were exceeded by the recorded BOD<sub>5</sub>, TSS, Total Coliform, E. Coli, and pH for single samples. This does not represent the number of NPDES permit violations for each category.

**Table 2.8: Number of Times Permit Limits were Exceeded by  
Single Samples June 2017 to April 2020**

	30-Day Average	7-Day Average	30-Day Average	Daily Maximum	Total Number of Samples Tested
BOD <sub>5</sub>	15	4			25
TSS	20	15			26
Total Coliform			14	9	27
E. Coli			5	4	23
pH				4	26

A total of six water quality parameters have set limits in Elk Point's permit including BOD<sub>5</sub>, TSS, total coliforms, E. Coli, total residual chlorine, and pH. Total residual chlorine is excluded from these tables, as sampling data indicated it was not tested from 2017 to 2020. Table 2.9 shows permit violations per discharge month from 2017 to 2020. The table is based on the sampling data provided by Elk Point staff, and actual violations could be different if alternative values were submitted to the South Dakota Department of Environment and Natural Resources. As shown in Table 2.9, there are violations in each parameter from 2017 to 2020. TSS and total coliforms had the highest number of violations.

**Table 2.9: NPDES Permit Limit Violations**

Date	BOD <sub>5</sub> (mg/L)		Total Suspended Solids (mg/L)		Total Coliform (#/100 mL)		E. Coli (#/100 mL)		pH
	30-Day Ave. Limit Violation	7-Day Ave. Limit Violation	30-Day Ave. Limit Violation	7-Day Ave. Limit Violation	30-Day Ave. Limit Violation	Daily Max. Violation	30-Day Ave. Limit Violation	Daily Max. Violation	Limit Violation
Jun-17					Yes	Yes			
Oct-17			Yes	Yes	Yes				
Nov-17	Yes		Yes	Yes					
Apr-18			Yes	Yes					Yes
Jul-18			Yes		Yes	Yes			Yes
Aug-18			Yes		Yes				
Mar-19					Yes	Yes	Yes	Yes	
Oct-19	Yes		Yes	Yes	Yes	Yes			
Apr-20	Yes	Yes	Yes		Yes	Yes			Yes

Table 2.10 shows the compiled effluent quality parameters from Discharge Monitoring Reports (DMRs) for the City of Elk Point from June 2017 to April 2020. The most samples taken in one month was six. As shown, samples are taken only when discharging wastewater effluent. Table 2.11 shows the compiled influent quality parameters from the DMRs from the City of Elk Point from November 2017 to April 2020.

**Table 2.10: Wastewater Effluent Quality Parameters from 2017 to 2020**

Sample Location	Date	Sample Type	BOD <sub>5</sub> (mg/L)	BOD Removal (%)	Total Suspended Solids (mg/L)	TSS Removal	Total Coliform (#/100 mL)	E. Coli (#/100 mL)	Fecal Coliform (#/100 mL)	Ammonia Nitrogen (NH <sub>3</sub> -N) (mg/L)	pH	Temp
Effluent	6/13/2017	Grab	14.4		26.7		>24,000	10		0.1		
Effluent	10/16/2017	Grab	26		72		6,500	63		0.152	8.4	12
Effluent	11/2/2017	Comp	37.3	91	49	81	41	10		0.52	8.9	5.7
Effluent	11/3/2017	Comp	31.4	87	46	73	4.1	1		0.501	8.4	5.4
Effluent	4/10/2018	Grab	21.8		70		10	10	10	10.1	9.1	3.8
Effluent	4/25/2018	Grab	35.6		85		63	10		4.5	9.8	117
Effluent	7/23/2018	Comp	19	87	36	68	24,000	10	10	0.119	8.2	25.2
Effluent	7/24/2018	Comp	19.6	91	44	87	3,900	10	10	0.169	8.6	26.9
Effluent	7/25/2018	Comp					330,000	10			8.7	16.6
Effluent	7/26/2018	Comp			42.9	85	130,000	1	10		9.2	11.5
Effluent	7/31/2018	Comp	30.7	90	55	79	2,000	1	10	0.226	8.3	22.4
Effluent	8/6/2018	Comp	17.4	89	28	84	1,000	1	1	1.4	7.5	22.1
Effluent	8/13/2018	Comp	33.4	83	45	86	15,000	26	1	1.46	8.9	26.5
Effluent	3/19/2019	Comp	21.1	89	16	87	23,000	11,000	2,800	6.15	8.7	5.5
Effluent	3/20/2019	Comp	24.6	85	19	87	16,000	8,600		7.52	8.6	6
Effluent	3/21/2019	Comp	29.6	88	24	89	64,000	13,000		9.53	6.3	4.9
Effluent	3/26/2019	Comp	25.6	90	18	92	19,000	2,600		11	7.9	6.4
Effluent	10/2/2019	Comp	42.6	86	68.6	62	32,000	200		0.776	7.8	17.6
Effluent	10/3/2019	Comp	42.6	66	50	55	1,600	10		0.893	8.3	15.1
Effluent	10/7/2019	Comp	38	75	52	57	13,000	20		0.281	8.3	15.1
Effluent	10/8/2019	Comp	37.5	86	50	82	65,000	10		0.189	7.9	14.6
Effluent	10/15/2019	Comp	27.1	88	54	86	1,600	31		1.63	8.8	9.9
Effluent	10/21/2019	Comp	27.5	85	57.1	65	2,900	10		2.45	8.9	11.9
Effluent	4/7/2020	24 Hour Comp	42.6	74	29.3	85	31	10		8.34	8.8	12.4
Effluent	4/8/2020	24 Hour Comp	30.6	89	15	97	63	10		7.65	9	12.6
Effluent	4/14/2020	24 Hour Comp	64.9	82	45	92	440	1		4.14	7.8	4.1
Effluent	4/15/2020	24 Hour Comp	55.1	90	30	97	180	1		3.52	7.3	7.9
Effluent	4/22/2020	24 Hour Comp	74.8	85	45	89	42,000	3		1.16	8	14.4
Effluent	4/29/2020	24 Hour Comp	80.3	76	68	64	920	42		7.93	7	14.5



**Table 2.11: Wastewater Influent Quality from 2017 to 2020**

Sample Location	Date	Sample Type	BOD <sub>5</sub> (mg/L)	Total Suspended Solids (mg/L)	Total Coliform (#/100 mL)	E. Coli (#/100 mL)
Influent	11/2/2017	Comp	407	264	61,000,000	8,600,000
Influent	11/3/2017	Comp	241	168	48,800,000	4,100,000
Influent	7/23/2018	Comp	145	115	24,000	24,000
Influent	7/24/2018	Comp	210	333	24,000	6,200,000
Influent	7/25/2018	Comp			34,000,000	3,300,000
Influent	7/26/2018	Comp		280	13,000,000	2,800,000
Influent	7/31/2018	Comp	317	260	9,900,000	3,200,000
Influent	8/6/2018	Comp	159	170	3,600,000	1,600,000
Influent	8/13/2018	Comp	192	330	2,900,000	1,500,000
Influent	3/19/2019	Comp	193	122	33,000,000	5,500,000
Influent	3/20/2019	Comp	168	151	240,000,000	49,000,000
Influent	3/21/2019	Comp	250	210	7,700,000	2,200,000
Influent	3/26/2019	Comp	245	214	11,000,000	1,600,000
Influent	10/2/2019	Comp	294	180	24,000,000	
Influent	10/3/2019	Comp	124	110	4,300,000	
Influent	10/7/2019	Comp	150	120	21,000,000	
Influent	10/8/2019	Comp	262	275	29,000,000	
Influent	10/15/2019	Comp	233	387	22,000,000	
Influent	10/21/2019	Comp	182	164	17,000,000	
Influent	4/7/2020	24 Hour Comp	166	200	20,000,000	
Influent	4/8/2020	24 Hour Comp	282	460	24,000,000	
Influent	4/14/2020	24 Hour Comp	355	543	12,000,000	
Influent	4/15/2020	24 Hour Comp	570	867	19,000,000	
Influent	4/22/2020	24 Hour Comp	488	412	3,300,000	
Influent	4/29/2020	24 Hour Comp	340	190	52,000,000	

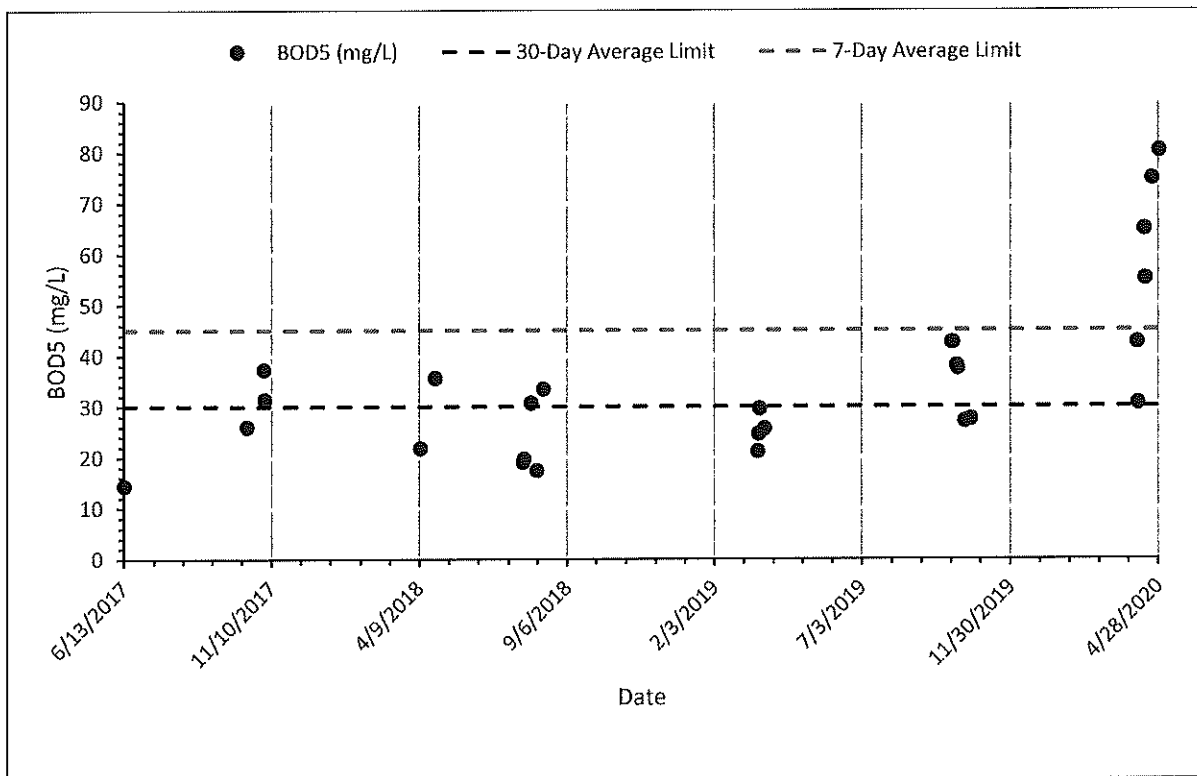


Figure 2.2: Effluent BOD<sub>5</sub> Concentrations from 6/17 to 4/20 with NPDES Limits Shown

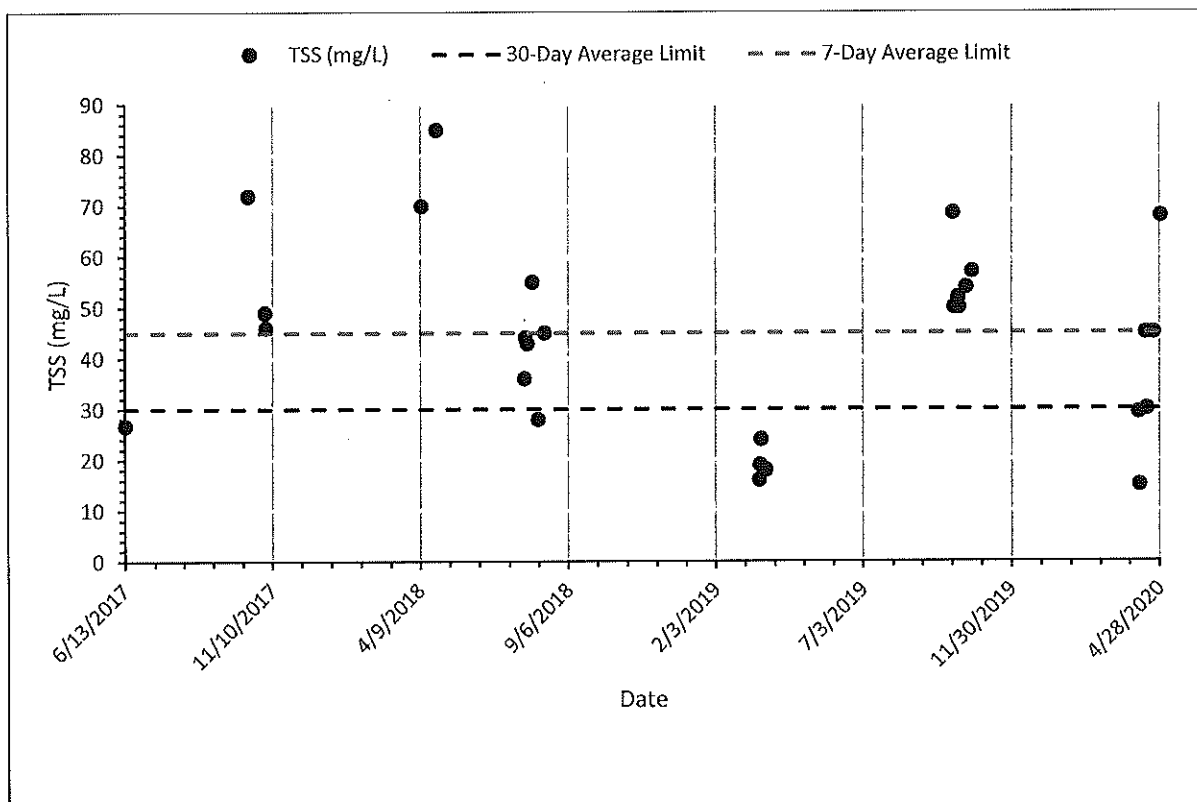


Figure 2.3: Effluent TSS Concentrations from 6/17 to 4/20 with NPDES Limits Shown

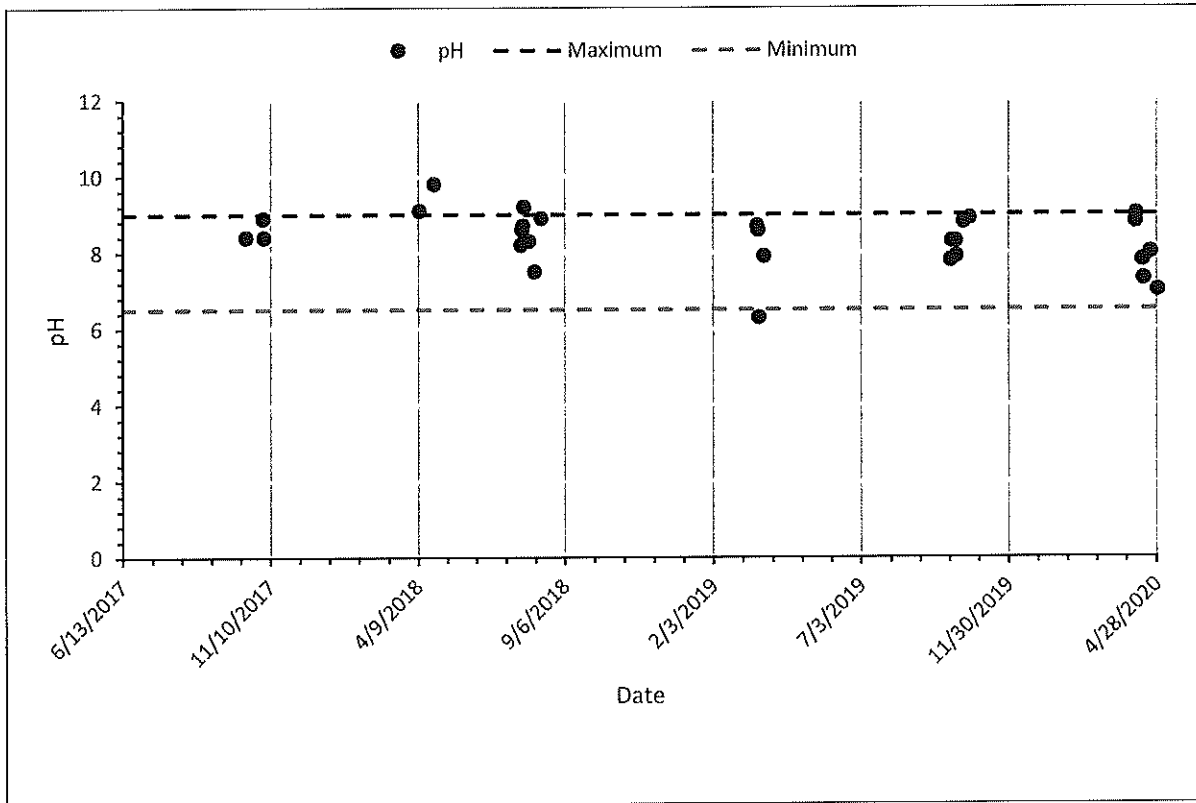


Figure 2.4: Effluent pH Values from 6/17 to 4/20 with NPDES Limits Shown

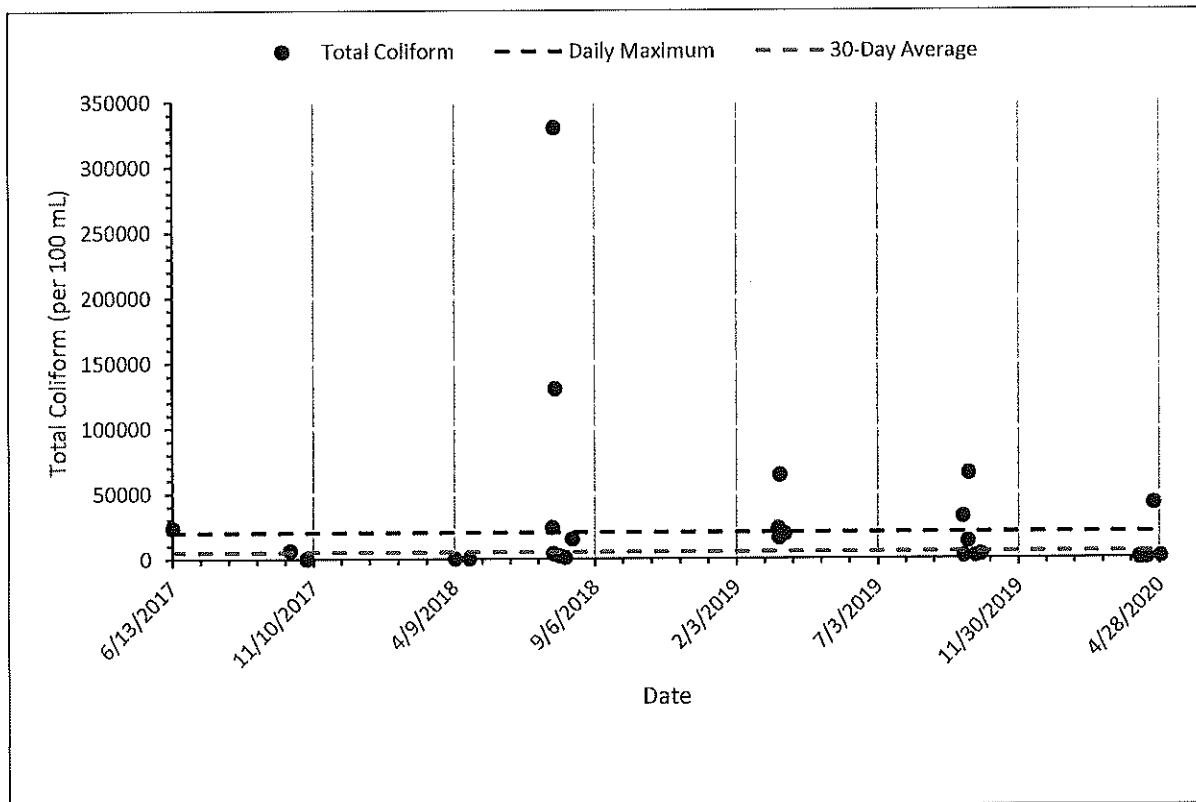


Figure 2.5: Effluent Total Coliform Values from 6/29 to 4/20 with NPDES Limits Shown

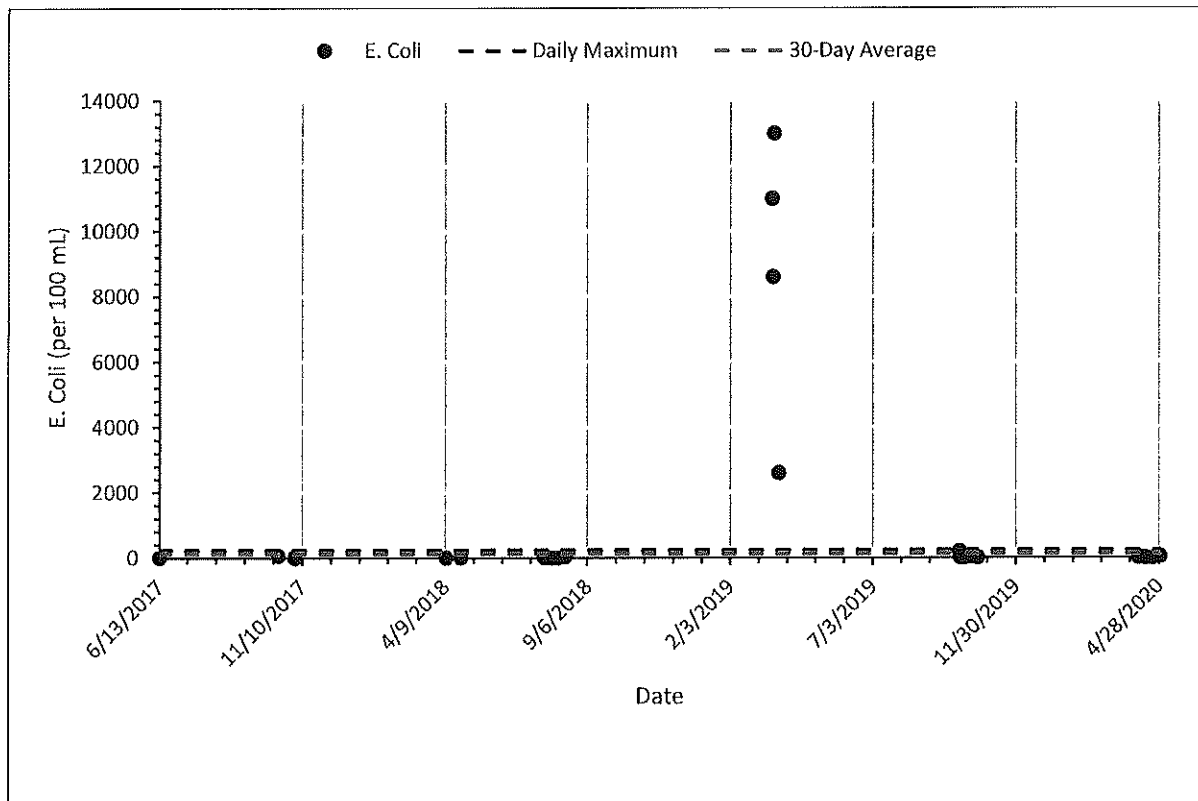


Figure 2.6: Effluent E. Coli Values from 6/29 to 4/20 with NPDES Limits Shown

## 2. Design Loadings

The following paragraphs provide a breakdown of 20-year design loadings for the City of Elk Point. Design loadings are determined based on existing wastewater loadings, existing industrial contributions, and anticipated industrial commercial, and residential growth.

Wastewater loading projections are calculated by determining mass per capita (e.g., lbs/cap/day) values for BOD<sub>5</sub> and TSS using historical data and recommended design standards. Minimum per capita design loading rates, given by the Recommended Standards for Wastewater Facilities – 2014 Edition ("Ten States Standards") are 0.17-0.22 lbs. of BOD<sub>5</sub> per day per capita and 0.20-0.25 lbs. of TSS per day per capita.

The City of Elk Point provided historical influent data for BOD<sub>5</sub> and TSS. Using this, and the estimated 2020 population of 2,149 persons, the BOD<sub>5</sub> loading was 0.25 lbs. per day per capita and the TSS loading was 0.26 lbs. per day per capita. Both values exceed the typical recommended design range according to the Ten States Standards; therefore, these values will be used for the design loadings.

Table 2.12: Elk Point Design Loadings 2040

Parameter	Average Design Loading (lbs/capita/day)	Average Design Loading (lbs/day)	Maximum Design Loading (lbs/capita/day)	Maximum Design Loading (lbs/day)
BOD <sub>5</sub>	0.25	542	0.56	1509
TSS	0.26	567	0.84	2264

i) For Determination of Influent Average BOD<sub>5</sub> Loading

To determine the average influent BOD<sub>5</sub> design loading, current BOD<sub>5</sub> loading was estimated using data provided by the city. Each loading was based off the average flow value of 0.25 MGD from Elk Point's Main Lift Station in 2019. The 2020 and 2021 average flow values were lower at around 0.16 MGD, but based on the 2005 design points, 0.25 MGD was found to be more representative.

The average BOD<sub>5</sub> influent load was estimated at 542 lbs/day using influent sampling data provided by Elk Point. This was found by averaging all sampling data provided. Using this value and the existing population of 2149 persons, the BOD<sub>5</sub> load per capita was estimated at 0.25 lbs BOD<sub>5</sub> per capita per day.

ii) For Determination of Influent Maximum BOD<sub>5</sub> Loading

The maximum BOD<sub>5</sub> load was estimated using the maximum calculated BOD<sub>5</sub> load from the City's samples. From 2017 to 2020 the maximum day load was approximately 1200 lbs BOD<sub>5</sub> per day. This value was then divided by the existing population of 2149 to get a maximum loading of 0.56 lbs/capita/day. The estimated future population of 2695 was then multiplied by 0.56 lbs/capita/day to get a maximum design loading of 1509 lbs/day.

iii) For Determination of Influent Average TSS Loading

The same method used to calculate the average influent BOD<sub>5</sub> design loading was used to calculate the average influent TSS design loading. The average TSS influent load was estimated at 567 lbs/day using influent sampling data provided by Elk Point. This was found by averaging all sampling data provided. Using this value and the existing population of 2149 persons, the TSS load per capita was estimated at 0.26 lbs TSS per capita per day.

iv) For Determination of Influent Maximum TSS Loading

The maximum TSS load was estimated using the maximum calculated TSS load from the City's samples. From 2017 to 2020, the maximum day load was approximately 1800 lbs TSS per day. This value was then divided by the existing population of 2149 to get a maximum loading of 0.84 lbs/capita/day. The estimated future population of 2695 was then multiplied by 0.84 lbs/capita/day to get a maximum design loading of 2264 lbs/day.

G. Design Parameter Summary

Table 2.13 shows a Design Parameter Summary for the Elk Point. Values were taken from previous sections of this report. The design flows used were taken from the previous design point as they were the most conservative values. Detailed explanation of design parameter values can be found in previous sections of this report.

Table 2.13: Elk Point Design Parameter Summary		
Parameter	Unit	Value
Average Dry Weather (ADW) Flow	MGD	0.36
Average Wet Weather (AWW) Flow	MGD	0.36
Peak Day Wet Weather (PDWW) Flow	MGD	0.73
Peak Hourly Wet Weather (PHWW) Flow	MGD	1.27
Average Daily BOD <sub>5</sub> Loading	lbs/day	542
Maximum Daily BOD <sub>5</sub> Loading	lbs/day	1509
Average Daily TSS Loading	lbs/day	567
Maximum Daily TSS Loading	lbs/day	2264

#### H. Biosolids

The Elk Point Treatment Facility does not produce biosolids. There is therefore no cost associated with biosolids but their level in the ponds should be monitored for dredging.

#### I. Existing Effluent Limits

The existing effluent limits for the Elk Point wastewater treatment system are described in Surface Water Discharge Permit No. SD0022080 which expires on January 31, 2027. The full permit can be found in Appendix A. The permit includes effluent limits for Five-Day Biochemical Oxygen Demand (BOD<sub>5</sub>), Total Suspended Solids (TSS), Escherichia coli (E. coli), Total Coliform, Total Residual Chlorine, and pH, as well as monitoring requirements for Flow Rate, Ammonia-Nitrogen (as N), Total Phosphorus (as P), Duration of Discharge, and Total Flow. Table 2.14 shows a summary of the discharge limits that are currently in effect.

The 30-day average is defined as “The arithmetic mean of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable” and the 7-day average is defined as “The arithmetic mean of all samples collected during a consecutive 7-day period or calendar week”. It also states that “All the samples collected during the 7-day, or 30-day period are to be used in determining the averages”. By this definition, all samples within a month are considered for the 30-day average, even if the facility discharges one time in the month. These rules apply to BOD<sub>5</sub> and TSS.

Total coliforms and E. Coli limits state that if there are “less than 5-samples, the daily maximum effluent limit still applies”. Meaning if there are less than five samples taken in a given month, the 30-day average limit is no longer applicable, but the daily maximum limit must still be met by individual samples. The daily maximum limit is “the maximum value allowable in any single sample of instantaneous measurement”. The same concept applies to pH, except there is also a minimum limit. If a single sample falls out of the pH limit range, it is a violation.

**Table 2.14: Elk Point's Existing NPDES Permit Summary of Discharge Limits**

Effluent Parameter	Effluent Limit and Reporting Values			Monitoring Requirements	
	30-Day Average	7-Day Average	Daily Maximum	Frequency	Sample Type
Five-Day Biochemical Oxygen Demand (BOD <sub>5</sub> )	30 mg/L	45 mg/L		3 Times/Week	24-Hour Composite
Total Suspended Solids (TSS)	30 mg/L	45 mg/L		3 Times/Week	24-Hour Composite
Escherichia coli (E. Coli)	126 per 100 mL		235 per 100 mL	3 Times/Week	Grab
Total Coliform	5,000 per 100 mL		20,000 per 100 mL	3 Times/Week	Grab
Total Residual Chlorine			0.019 mg/L	3 Times/Week	Grab
pH	The pH of the discharge shall not be less than 6.5 standard units or greater than 9.0 standard units in any sample.			3 Times/Week	Instantaneous
Water Temperature	Report, C		Report, C	3 Times/Week	Instantaneous
Flow Rate	Report, MGD		Report, MGD	3 Times/Week	Instantaneous
Ammonia- Nitrogen (as N)	Report, mg/L		Report, mg/L	3 Times/Week	24-Hour Composite
Total Nitrogen (as N)			Report, mg/L	Once per discharge	Grab
Total Phosphorus (as P)			Report, mg/L	Once per discharge	Grab
Duration of Discharge	Report Monthly Total, Days			Monthly	Calculate
Total Flow	Report Monthly Total, Million Gallons			Monthly	Calculate

#### J. Consideration for Future Effluent Limits

As regulations continue to evolve over the next 20 years, it is possible the city may be subject to more stringent discharge limits. The facility currently only reports ammonia, total nitrogen, and total phosphorus. But it is possible that the EPA will introduce new limits on these three parameters to Elk Point in the future.

The Environmental Protection Agency's document 'Aquatic Life Ambient Water Quality Criteria for Ammonia' recommends 1.9 mg/L as a 30-day average and 4.8 mg/L as a 4-day average. Future limits could be like these values, in which case the 2020 ammonia average would have exceeded both.

No influent or effluent data on total nitrogen and total phosphorus was provided by the city, making it difficult to review current levels in the wastewater facility. The city should be aware of potential changes to their NPDES permit in the future, and monitor total nitrogen and total phosphorus concentrations in their wastewater.

The city's existing facility is not designed to remove phosphorus or nitrogen effectively beyond what is utilized biologically in the mechanical treatment system or can be removed with reasonable chemical addition. As future limits reach beyond the technological removal capacity of the city's existing treatment system, additional infrastructure will be needed to enhance phosphorus and nitrogen removal.

### III. EXISTING WASTEWATER FACILITIES

#### A. History

##### 1. General

The City of Elk Point's wastewater treatment facility was originally constructed in 1968. The original design was a three-cell lagoon system. The largest cell was originally used as the primary treatment cell. From 1968 to 2005, the system was designed for continuous discharge. In 2005, the city upgraded the treatment system to include aeration. A total of 18 surface aerators were originally used for aeration. Sometime after 2005, the surface aerators were switched out for five Venturi pump aerators. The decision to change aeration equipment was made because the surface aerators were prone to flipping and more difficult to maintain. The northeast cell was also changed to the primary treatment cell during this time. In February of 2017, a baffle was added to the largest cell and the northwest cell was rehabilitated with a new clay liner.

#### B. Process Description

##### 1. System Components

The City of Elk Point's existing wastewater treatment system includes the following components and processes:

- Collection System
  - Gravity collection system piping
  - Main collection system piping
  - Main piping from main lift station to wastewater lagoon
- Four raw wastewater lift stations
  - Dunham Lift Station: 387 gpm at 23 ft. TDH
  - Kum and Go Lift Station: 100 gpm at 23 ft. TDH
  - Green Street Lift Station: 100 gpm at 23 ft. TDH
  - West End Lift Station: 150 gpm at 32 ft. TDH
- Main Lift Station/Pumping Station (Wurtz):
  - 800 gpm at 107 ft. TDH
  - UV Disinfection System
- Influent Building
  - Flow metering
- Aerated lagoon treatment facility
  - Cell No. 1 (aerated): 5.75 acres
  - Cell No. 3: 5.25 acres
  - Cell No. 2: 13 acres
- Chlorination



- Dechlorination
- Outfall to unnamed tributary of Missouri River

## 2. Process Description

Wastewater is generated throughout the City of Elk Point through residential and commercial use. The wastewater is collected by a network of sanitary sewer piping. The piping consists of gravity sewer lines and force main sewer lines that help convey the City's wastewater to the Main Lift Station.

There are a total of five lift stations used to convey wastewater to the City's lagoon treatment facility. The Dunham, Cum and Go, Westside, and Green Lift Stations each handle a portion of Elk Point's wastewater flow. Each of these four lift stations pumps to the Main Lift Station. Wastewater is then pumped from the Main Lift Station to the treatment lagoons.

Wastewater entering the treatment lagoons enters the northeast cell, Cell #1. Two venturi pumps are used to aerate Cell #1. The venturi pumps recirculate the wastewater in Cell #1 and add oxygen simultaneously. Wastewater flows from Cell #1 to Cell #2 (northwest cell) through a gravity line between the two cells. A 6" valve is used to control the flow between Cells #1 and #2.

A pump is used to transfer wastewater from Cell #2 to Cell #3 (south cell). There is no existing piping between Cell #2 and Cell #3. The pump used to transfer wastewater from Cell #2 to Cell #3 is also used to aerate Cell #3 when wastewater is not being transferred between cells.

Effluent wastewater from the lagoons exits on the west side of Cell #3 through piping that is normally closed with a valve. Upon exiting, effluent wastewater enters the chlorination structure. The effluent wastewater then flows until reaching the dechlorination structure and is discharged to the drainage ditch to the west of the lagoons.

There are piping systems present that are no longer used, including piping and valves that convey flow from Cell #1 to Cell #3 and piping and valves that convey flow from Cell #3 to Cell #1. The system conveying wastewater from Cell #1 to Cell #3 is no longer used due to the cell flow sequence being reversed in the past. The system conveying wastewater from Cell #3 to Cell #1 was used when Cell #2 was inoperable. It is no longer used because Cell #2 was relined and is in operation once again.

## C. Treatment Performance

### 1. Influent Flow

The influent flow to the plant from January 2019 to December 2021 was estimated using pump runtime hours from the Wurtz (Main) Lift Station. Pump drawdown tests were not performed; therefore, the pumping rate was assumed to be 800 gpm. The average daily flow was estimated using the estimated total yearly flow divided by 365 days. Other methods of determining daily flow were not used because pump runtime hours were taken weekly or biweekly, making daily flows difficult to estimate. Based on the estimated average daily flow, current flows are well under the design flow capacity. As seen in Table 3.1 the average daily flows for 2019 to 2021 are well below the 2005 design flow of 363,563 gallons per day.

<b>Table 3.1: Average Daily Flows from 2019-2021, City of Elk Point</b>			
<b>Year</b>	<b>Total Yearly Flow (Gal.)</b>	<b>Total Yearly Flow (MG)</b>	<b>Flow (MGD)</b>
2019	86,582,400	86.58	0.24
2020	59,470,080	59.47	0.16
2021	58,235,520	58.24	0.16

## 2. Discharge

The City of Elk Point is not bound to permitted discharge windows according to its NPDES permit. The city typically discharges from their lagoon two times a year, once in the spring and once in the fall. The timing of the discharge depends mainly on yearly weather conditions. There have not been any emergency discharges from 2018 to 2020 based on flow data. The following were the discharge periods from 2018 to 2020:

- 4/10/2018 through 4/25/2018
- 7/23/2018 through 7/31/2018
- 8/6/2018 through 8/13/2018
- 3/19/2019 through 3/26/2019
- 10/2/2019 through 10/21/2019
- 4/7/2020 through 4/29/2020

## 3. BOD<sub>5</sub> Removal

From 2017 to 2020, a total of 27 wastewater samples were taken to measure influent and effluent BOD<sub>5</sub> concentrations. The samples were a mixture of grab and composite samples. Of the 27 effluent samples collected, 15 were over the NPDES 30-day average limit of 30 mg/L, and four were over the 7-day average limit of 45 mg/L. There is no percent removal goal outlined for BOD<sub>5</sub> in Elk Point's NPDES permit.

Table 3.2 shows the average percent removal of BOD<sub>5</sub> from 2017 to 2020 in Elk Point's lagoon system. As shown, the average removal percentage has decreased each year from 2017. This indicates that BOD<sub>5</sub> removal may be on a downward trend. No flow data for the individual sampling dates was available; therefore, removal is average concentration removal and not average mass removal.

<b>Table 3.2: Average BOD<sub>5</sub> Removal Percentage from 2017-2020, City of Elk Point</b>	
<b>Year</b>	<b>Average Removal Percent (%)</b>
2017	89
2018	88
2019	84
2020	83
Minimum % Removal Required	88
Note: Minimum % Removal is based on average influent value of 259.7 mg/L from 2017 to 2020 and effluent limit of 30 mg/L	

#### 4. TSS Removal

From 2017 to 2020, a total of 28 wastewater samples were taken to measure influent and effluent BOD<sub>5</sub> concentrations. The samples were a mixture of grab and composite samples. Of the 28 effluent samples collected, 20 were over the NPDES 30-day average limit of 30 mg/L, and 15 were over the 7-day average limit of 45 mg/L. There is no percent removal goal outlined for TSS in Elk Point's NPDES permit.

Table 3.3 shows the average percent removal of TSS from 2017 to 2020. As shown, the lagoon system removed the highest percentage of TSS in 2020. This is due to a substantial increase in influent TSS concentrations while still maintaining similar effluent concentrations as previous years. These results indicate that the lagoon system can maintain consistent effluent TSS values despite higher influent TSS loadings. No flow data for the individual sampling dates was available; therefore, removal is average concentration removal and not average mass removal.

Table 3.3: Average TSS Removal Percentage from 2017-2020, City of Elk Point	
Year	Average Removal Percent (%)
2017	77
2018	81
2019	76
2020	87
Minimum % Removal Required	89
Note: Minimum % Removal is based on average influent value of 272 mg/L from 2017 to 2020 and effluent limit of 30 mg/L	

#### 5. pH

From 2017 to 2020, a total of 28 wastewater samples were taken to measure effluent pH levels. The samples were a mixture of grab and composite samples. Of the 28 effluent samples, four were over the NPDES limit of 9.0 and no samples were below the lower limit of 6.0. The high pH indicates the presence of algae. It is likely influent pH levels were lower than 9.0, but as algae grows in the pond, the pH increases.

#### 6. Coliforms

From 2017 to 2020 there were 7 30-day average violations and 5 daily maximum violations for total coliforms. Of 29 samples, 14 exceeded the 30-day average limit value and 9 exceeded the daily maximum limit value. In 2020, total coliform values were lower than values from 2017 to 2019. However, total coliform values have consistently been in violation of Elk Point's NPDES Permit limits, and this trend is expected to continue.

#### 7. E. Coli

From 2017 to 2020 there was 1 30-day average violation and 1 daily maximum violation for E. Coli. Of 29 samples, 5 exceeded the 30-day average limit value and 4 exceeded the daily maximum limit value. E. Coli concentrations have historically been low aside from one discharge period in the spring of 2019. The facility will likely meet E. Coli limits in the future based on historical data.

8. Odor

The facility has recently had issues with odors in the lagoon. The facility is approximately one mile from the center of the City of Elk Point. Being near town, odors are frequently reported by residents of Elk Point. Odors from the lagoon system indicate that the facility is not properly treating influent wastewater loads. Improvement of the system is therefore required.

D. Evaluation of Facilities

In general, the Elk Point wastewater systems lagoons, equipment, and collection system are in fair condition; however, the existing system does not have the ability to treat current contaminant loadings. The lagoon ponds were constructed in 1968 and received significant upgrades in 2005.

1. Collection System

The collection system is assumed to be in adequate condition. It is recommended that the collection system be inspected and upgraded as needed.

2. Lift Stations

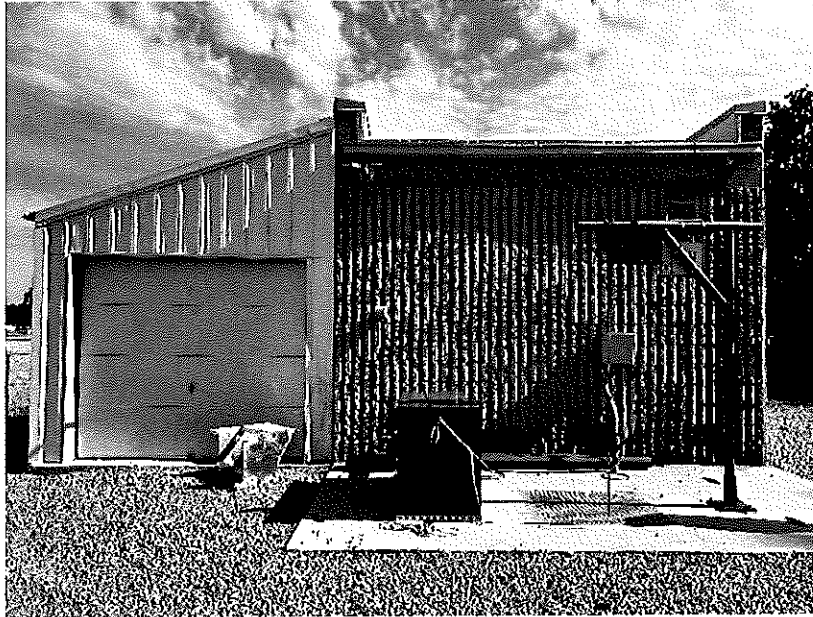
The four lift stations are assumed to be in adequate condition as stated by Elk Point staff. Each lift station is a duplex, and both pumps in each are currently operable. The pumps and controls in the Dunham, Green, and West End Lift Stations are thought to be older than 20 years. It is recommended that these lift stations continue to be inspected and upgraded as needed.

- Dunham Lift Station
- Kum and Go Lift Station
- Green Street Lift Station
- West End Lift Station

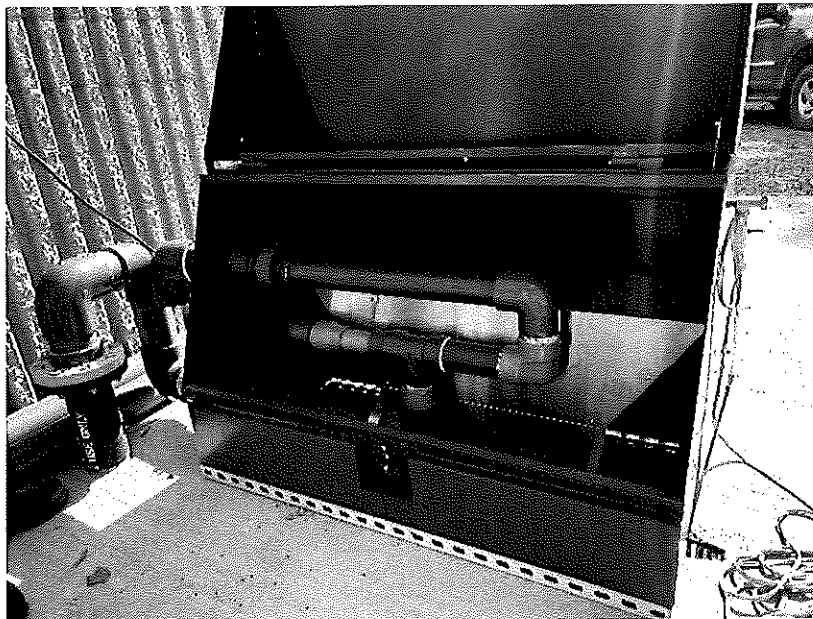
3. Pumping Station

- Main (Wurtz) Lift Station

The Main (Wurtz) Lift Station is assumed to be in adequate condition as stated by Elk Point staff. It operates as a duplex lift station. The City recently installed a UV system to reduce odors at the lift station. Previously an odor scrubber to reduce odors at the lift station. City staff noted significant improvement in odors coming from the lift station. Further improvements to the Main (Wurtz) Lift Station will not be considered in this report. However, it is recommended that the lift station continue to be inspected and upgraded as needed. Figure 3.1 shows the Main (Wurtz) Lift Station Building. Figure 3.2 shows the UV system outside of the Main (Wurtz) Lift Station.



**Figure 3.1: Main (Wurtz) Lift Station Building**



**Figure 3.2: Main Lift Station UV System**

#### **4. Influent Building**

Raw sewage pumped out of the main lift station is measured by a flow meter. Flow is totalized and recorded. The flow meter reads in thousands of gallons with the decimal indicating hundreds of gallons. Figure 3.3 shows the flow meter next to the influent building and influent pipe.

The influent building is aged but is in adequate condition. The building appears to be used primarily for storage. Replacement or improvements would be at the discretion of the City. Figure 3.4 shows the existing influent building. The flow meter appears

relatively new compared to the rest of the facility. Replacement of the influent flow meter is likely not required for this reason. The inlet structure beneath the meter box appears to be in good condition as well.

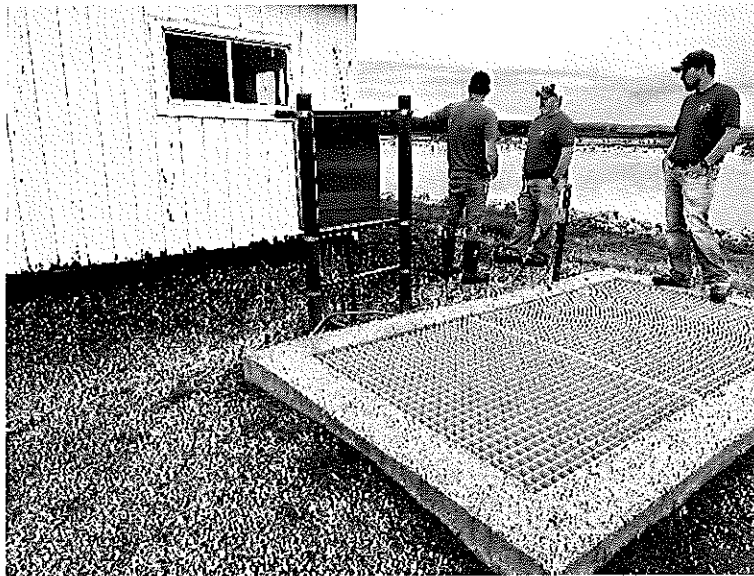


Figure 3.3: Influent flow meter by influent shack and influent pipe



Figure 3.4: Existing influent building

## 5. Treatment Facility - Lagoon System

### a) Lagoons

#### i) Cell No. 1

Cell No. 1, the aerated cell, needs aeration equipment replacement. There are currently two venturi aerators that aerate Cell No. 1 but one of them has underperformed since it was repaired. The aeration equipment is

currently functioning but does not provide adequate aeration to assist with oxygen replenishment to reduce biochemical oxygen demand.

Large diameter rocks comprise the riprap along all sides of Cell No.1. The rip rap extends below the water level to prevent erosion of the sidewalls. The rip rap is in good condition, there are no notable gaps and vegetation appeared to be controlled between the rocks. The aeration cell is dredged approximately every 20 years, the most recent being done in the past five years.

From sludge depth testing conducted by the City in 2021. Cell No. 1 has an average sludge depth of 1.04 ft, a minimum of 0.33 ft, and a maximum of 3.0 ft. The minimum values were found near the Venturi Aerators and the maximum values were found near the south end of Cell No. 1. This data indicates that the aeration ponds still have sludge storage capacity available in most of the cell. However, some areas in the southern section of the cell may need dredging. Figures 3.5 and 3.6 show the aeration cell facing westward. Figure 3.7 shows the aeration cell facing north. Figure 3.8 shows one of the two existing Venturi aerators.



Figure 3.5: Cell No. 1 Facing Westward



Figure 3.6: Cell No. 1 Facing Westward



Figure 3.7: Cell No. 1 Facing North



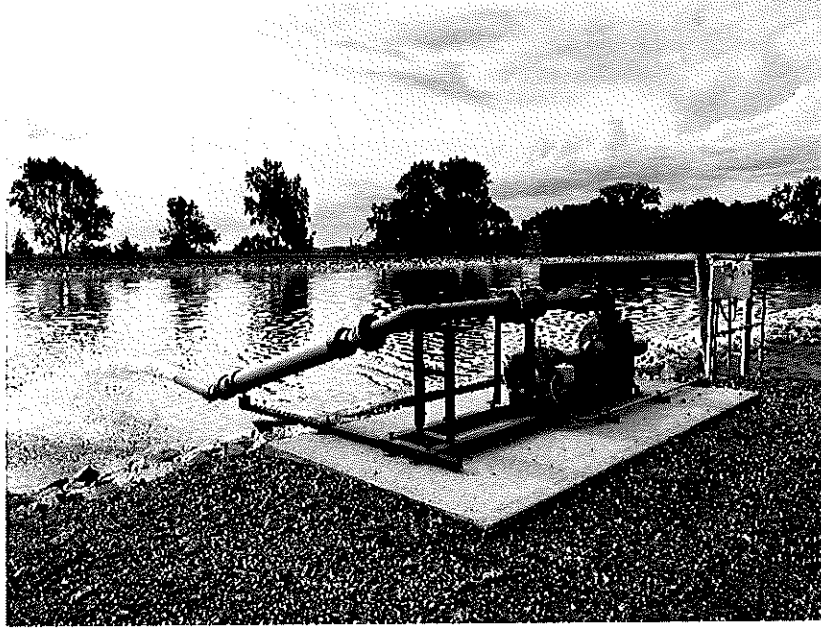


Figure 3.8: Venturi Aerator Pumping into Cell No. 1

ii) Cell No. 3

Cell No. 3 is overall in good shape. Large diameter rocks comprise the riprap along all sides of Cell No.1. The rip rap extends below the water level to prevent erosion of the sidewalls. The rip rap is in good condition, there are no notable gaps and vegetation appeared to be controlled between the rocks.

In the past, Cell No. 3 developed a leak and was temporarily put out of service. The cell was then repaired with a new clay liner and put back into service sometime after 2004. There are no records of Cell No. 3 being dredged in its lifetime, aside from when it was completely drained for repairs. No sludge depth testing was conducted in Cell No. 3. Figure 3.9 shows the southern side of Cell No. 3 from the dike separating Cells No. 1 and 2 from Cell No. 2.



Figure 3.9: Southern View of Cell No.3 from Existing Dike

iii) Cell No. 2

Cell No. 2 is overall in good shape. Large diameter rocks comprise the riprap along all sides of Cell No.1. The rip rap extends below the water level to prevent erosion of the sidewalls. The rip rap is in good condition, there are no notable gaps and vegetation appeared to be controlled between the rocks.

The baffle wall in Cell No. 2 is partially submerged, indicating damage. There are no records of this cell being dredged during its lifetime. No sludge depth testing was conducted on this cell.

Figure 3.10 shows the baffle wall from the westward direction. Figure 3.11 shows Cell No. 2 from the southwest direction. Figure 3.12 shows Cell No. 3 from the southward direction.



**Figure 3.10: Baffle Wall in Cell No. 2 from Westward Direction**



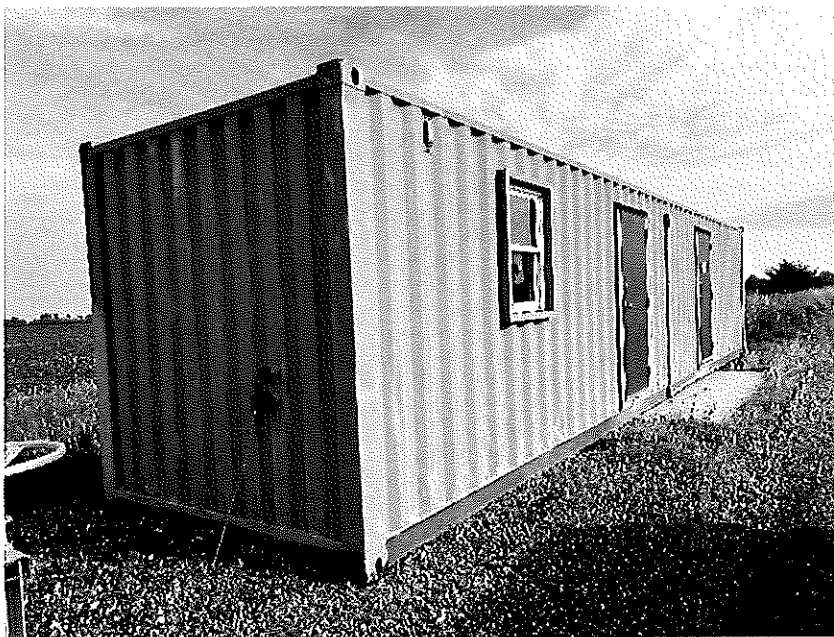
**Figure 3.11: Baffle Wall in Cell No. 2 from Southwest Direction**



**Figure 3.12: Cell No. 2 from Southward Direction**

**6. Outfall Building**

The outfall building is a repurposed cargo container and is in overall good condition. The building is used primarily for storage and when field testing effluent quality. No improvements are needed for the outfall building. Figure 3.13 shows the existing outfall building.



**Figure 3.13: Existing Outfall Building**

## 7. Outfall Structure

Lagoon effluent flows through the outfall structure. There it can be measured manually by an 18" wide flat weir. An 18" flat weir table located in the O&M Manual Wastewater Treatment Facilities for the City of Elk Point shows the flow in gallons per day for each  $\frac{1}{4}$ " increment. The two weirs are in adequate condition.

The overall structures of the outfall are in good condition. There is no noticeable cracking in the concrete. All metal crates are in good condition and the manhole lids are in good condition. The sluice gates are operable and are in good condition. Figure 3.14 shows the outfall structure. Figure 3.15 shows the manholes over the mixing joints downstream of the control structure inlet.

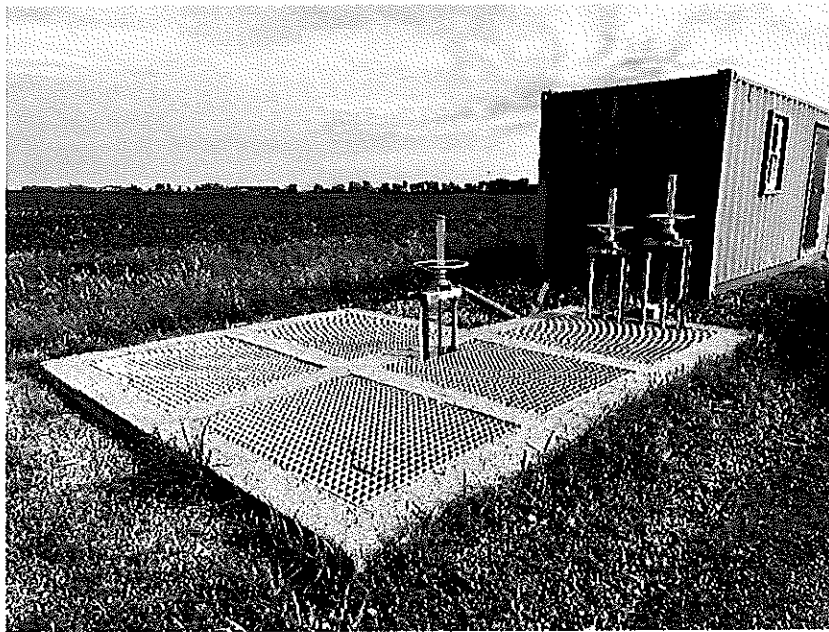


Figure 3.14: Outfall Structure



**Figure 3.15: Manholes Over Mixing Joints Downstream of Control Structure Inlet**

**8. Needs for Improvement**

Overall, the City of Elk Point's wastewater treatment system needs improvements due to inability to handle existing wastewater loads and aging infrastructure. The existing primary treatment cell, Cell #1, is being overloaded by influent wastewater contaminant concentrations. Overloading of the wastewater ponds has increased odors which can extend past the treatment facility into the City of Elk Point.

The facility will need to be improved or replaced to meet future contaminant limits set by their NPDES permit. The following are recommendations to allow for the City of Elk Point to continue to effectively treat wastewater into the future:

- It is recommended that existing aeration equipment be replaced by new aeration equipment with higher capacity.
- It is recommended that existing sludge levels be evaluated in each pond and dredged if necessary.

- It is recommended that all invasive vegetation growing in the riprap be removed or killed to avoid damage to the lagoon structures and to avoid harboring burrowing animals. Shallow-rooted vegetation should remain where riprap is not used.
- It is recommended that the riprap and dikes be repaired where signs of erosion are present.
- It is recommended that the existing wastewater flow path be evaluated and potentially changed if deemed necessary.

#### E. Summary

The Elk Point treatment facility was constructed in 1968. The facility was upgraded in 2004, with the addition of aeration in the treatment process.

- The system was originally designed for a hydraulic loading of 363,563 gpd average day, 727,127 gpd max day, and 1,266,055 gpm at peak hour. The design average organic loading is 652 pounds per day of BOD<sub>5</sub>. According to Elk Point's O&M Manual from 2002, the average dry weather flow is 361,730 gpd. The existing treatment facility was designed for an equivalent population of 2,965 with additional capacity for industries.
- The Venturi aerators are not supplying enough oxygen to adequately treat current wastewater loads.

## **IV. ALTERNATIVES FOR WASTEWATER TREATMENT FACILITY IMPROVEMENTS**

### **A. General**

This section provides a detailed discussion of various treatment alternatives for system improvements for the City of Elk Point. The purpose of evaluating multiple alternatives is to provide a range of options that consider both the short-term and long-term treatment needs of the City of Elk Point.

The next part of this section includes discussion of potential treatment alternatives for the City of Elk Point's wastewater treatment system improvements. The objectives of this discussion are to 1) identify potential treatment options for the city, and 2) select alternatives for further evaluation.

### **B. General Treatment Options**

There are several categories of alternatives that are given consideration when determining effective wastewater treatment improvements. There are four general solutions for the City of Elk Point: 1) operational changes, 2) rehabilitation of the existing wastewater treatment system, 3) construction of a new mechanical facility, or 4) regionalization with a nearby community. These general treatment options will be discussed in detail below. This discussion aims to provide insight into all possible treatment options and to narrow down alternatives for further discussion.

#### **1. Operational Adjustments and Maintenance Recommendations**

Operational changes are adjustments to the day-to-day and annual operations of running a facility. These changes aim to optimize performance and meet treatment limits without incurring costs for construction improvements; however, these changes would not include improvements that would extend the longevity of the treatment system. These adjustments can include:

- Changing the way wastewater moves throughout the lagoon system;
- Changing how often specific maintenance items are taken care of;
- Changing what specific maintenance items are addressed (i.e., adding more maintenance items or making sure appropriate maintenance items are being completed); and
- Other changes based on the needs of the wastewater treatment system.

Operational adjustments and maintenance recommendations are most often recommended for wastewater systems that have the following characteristics:

- System has sufficient capacity to meet AWW flow and MWW flow requirements as indicated by the DNR's wastewater design standards;
- System is currently able to easily meet their effluent limits such as BOD<sub>5</sub>, TSS, and pH; and
- Are typically seeing effluent sampling results that are close to the proposed effluent limits for the parameters in question (parameters having a Compliance Schedule).

When considering Elk Point's wastewater system, it is unlikely that operational changes will improve treatment performance. The system currently has sufficient capacity to meet flow requirements but is unable to meet BOD<sub>5</sub> and TSS effluent



limits. Additional limits on Nitrogen and Ammonia may also be implemented in the future, and the current facility would be unable to reduce Nitrogen and Ammonia concentrations. Operational changes may marginally improve treatment performance, but the existing system is unable to handle current wastewater loads.

## 2. Rehabilitation of the Existing Wastewater Treatment System

Rehabilitation of existing facilities includes improvements to the existing treatment facility site to make the wastewater treatment process more effective and efficient. Rehabilitation can consist of replacing or fixing existing equipment, structures, and processes that need repair or replacement. It can also include improving the system by adding additional equipment, structure, and processes to meet effluent limits effectively.

When rehabilitating a lagoon wastewater treatment system, rehabilitation often considers the condition of the pond liners, dikes, and control structures, as well as the lagoon capacity and effectiveness at meeting existing effluent limits. After analyzing these components, the following improvements may be included in a lagoon wastewater system rehabilitation:

- Rehabilitating concrete in control structures and outfalls;
- Dredging biosolids from ponds;
- Removing invasive vegetation growing in riprap;
- Replacing and adding riprap where necessary;
- Expanding the system with additional pond volume for added storage; and
- Adding additional equipment to the system to meet effluent limits.

## 3. Construction of a New Mechanical Facility

Another general solution is to construct a new mechanical facility specifically designed to meet the city's future treatment needs. This facility would utilize proven technologies to remove BOD and TSS along with ammonia nitrogen, total nitrogen, and total phosphorus. The new facility would also include a disinfection process to meet E. Coli effluent limits. The existing lagoons could be utilized in a mechanical facility for equalization storage to handle excessive flows. Ideally, the facility would be constructed near the existing lagoon system or main pumping station.

Mechanical wastewater treatment systems utilize a combination of physical, biological, and chemical processes to achieve treatment objectives. Mechanical facilities may include a combination of the following treatment components: pretreatment, primary treatment, secondary treatment, tertiary treatment, disinfection, and biosolids handling and disposal. The purpose and function of each of these components are described below:

- Pretreatment – involves the removal of constituents that can clog or damage equipment and interfere with downstream processes. These constituents may include organic solids such as rags, paper, wood, and garbage, as well as oil and grease. General technologies utilized for pretreatment include screening and grit removal devices.
- Primary Treatment – involves the physical separation of suspended solids utilizing clarifier technology. This separation reduces solids not removed in

preliminary processes, as well as removes a portion of influent organics known as biochemical oxygen demand (BOD).

- Secondary Treatment – involves the removal or reduction of contaminants that are not removed during primary treatment. This can be done through a combination of biological, physical, and chemical processes. Biological treatment involves the oxidation of pollutants such as organics and nitrogen through bacterial metabolism. Biological processes are often combined with physical processes such as clarification or membrane filtration to retain bacteria and remove suspended solids from the waste stream. Chemicals are commonly added to optimize the process or to help remove pollutants such as phosphorus. A wide variety of secondary treatment processes are utilized in the wastewater treatment industry. Raw wastewater characteristics and flow rates dictate which processes are necessary.
- Tertiary Treatment – involves the use of advanced wastewater treatment technologies to further remove pollutants from wastewater. Advanced treatment technologies commonly include tertiary sand filtration, ion exchanges, carbon adsorption, and membrane processes. Tertiary treatment is generally utilized in applications where treated wastewater is beneficially reused to supplement potable water supplies. Treatment of domestic wastewater generally does not require tertiary technologies.
- Disinfection – involves the destruction or inactivation of waterborne pathogens prior to discharging effluent to receiving waters for the purpose of minimizing public health threats. Disinfection can be done both chemically and physically. Chemical disinfection most commonly includes the use of chlorine-based products to destroy pathogens. Physical disinfection most commonly includes the use of ultraviolet irradiation (UV) but is also done through boiling or incineration.
- Biosolids Handling and Disposal – involves the processing, storage, and disposal of biosolids generated at a wastewater treatment facility. Biosolids are derived from excess growth and subsequent disposal of bacteria in the biological treatment process, as well as solids collected in the primary treatment process. Biosolids are collected and further stabilized through biological processes and stored/dewatered over the year to increase solids concentration. Depending on the degree of stabilization, biosolids are commonly disposed of through land application.

In most domestic wastewater treatment applications, biological secondary treatment is the key component in the process. Biological treatment generally utilizes suspended growth or attached growth processes. In suspended growth systems, microorganisms responsible for the oxidation of pollutants are suspended in the wastewater through mixing. In attached growth systems, the microorganisms become attached to the media, where they are exposed to organic matter as wastewater flows by the media. There are also hybrid systems that utilize a combination of suspended growth and attached growth processes. Table 4.1 summarizes commonly used biological secondary treatment processes.

<b>Table 4.1: Mechanical Wastewater Treatment Processes</b>	
<b>Type</b>	<b>List of Processes</b>
Suspended Growth	Oxidation Ditch
	Extended Aeration Activated Sludge
	Sequencing Batch Reactor (SBR)
	Membrane Bioreactor (MBR)
Attached Growth	Rotating Biological Contactor (RBC)
	Trickling Filter
Combination	Biological Aerated Filter (BAF)

Important criteria for selecting a treatment process are as follows:

- Ability of the process to meet effluent quality requirements;
- System reliability;
- Ability of the process to maintain performance during hydraulic fluctuations;
- Capital costs;
- Operation and maintenance costs (O&M);
- System expandability to meet future capacity requirements; and
- System adaptability to meet future effluent quality requirements.

Constructing a new mechanical treatment facility is typically an expensive alternative. For a city the size of Elk Point, a new mechanical treatment facility would cost millions of dollars to construct.

#### 4. Regionalization with a Nearby Community

Regionalization of wastewater treatment is when separate communities, regions, or industries share a common wastewater treatment facility. The wastewater from separate entities is combined and treated together at a shared facility. Regionalization can be beneficial for small communities like Elk Point, who do not have the financial capability to update their treatment facility or build their own mechanical treatment facility. Instead of paying all of the capital and operational costs, the costs are split between regions based on the percentage of wastewater being sent from each entity.

Regionalization for Elk Point could potentially be possible with the following cities:

- City of Burbank
  - 8.5 miles northwest of Elk Point, as the crow flies
  - Population: 93
- City of Jefferson
  - 8 miles southeast of Elk Point, as the crow flies
  - Population: 475

- City of Richland
  - 6 miles north of Elk Point, as the crow flies
  - Population: 164

Regionalization with any of these communities is dependent on their willingness to regionalize with the City of Elk Point. At the time of this report, the City of Elk Point was not discussing regionalization with any other entity. If discussions should open, this regionalization alternative can be evaluated in further detail.

#### C. Alternatives Considered for Wastewater Facility Improvements

Of the four general treatment options, only rehabilitation of the existing wastewater treatment system will be examined further in this report. The reasons for excluding the other three options are explained below:

Operational adjustments and maintenance recommendations would improve the performance of the treatment facility but would not be sufficient to meet current and future effluent limits for BOD<sub>5</sub> and TSS. This would be the least costly option of the four general treatment options but will not solve Elk Point's existing problems.

Construction of a new mechanical facility would significantly improve the treatment performance of the wastewater facility and would provide adequate capacity for the future; however, the costs associated with its construction and yearly costs would financially burden the City of Elk Point and its residents. With current and future wastewater flow and loadings, a mechanical facility is not necessary.

Regionalization with a nearby community is not being considered, as the City of Elk Point has not discussed this. This is dependent on the willingness of other communities to regionalize with Elk Point. Based on current understanding, the City of Elk Point will not seek regionalization in the future.

A discussion of general wastewater system alternatives was conducted above. Based on these general alternatives and the knowledge of Elk Point's treatment needs, the following specific alternatives will be considered in detail throughout the remainder of this report:

##### 1. Alternative No. 1: Use Existing Flow Path with New Aeration Equipment

Alternative No. 1 involves the rehabilitation of Elk Point's existing wastewater system. The alternative would update the existing system to ensure that wastewater can be treated through the design year 2042. This option would solely update aeration equipment, other changes to the existing facility would not be made.

The recommended BOD<sub>5</sub> loading range for wastewater ponds ranges from 15 to 35 pounds per acre per day per Ten State Standards. The existing loading rate is estimated at 90 pounds per acre per day based on historical data. The BOD<sub>5</sub> loading per acre would remain the same if the wastewater ponds were unchanged. This results in increased aeration costs due to requiring more to treat the BOD<sub>5</sub> loading that the ponds are unable to treat alone. There are three different aeration options that will be examined in this PER including Venturi aerators, surface aerators, and submerged diffuser aerators.

a) Venturi Aerators

i) Collection System and Lift Stations

- Repair known leaks in the collection system.
- Repair any known issues with existing lift stations.

ii) Pumping Station/Main Lift Station

- Repair any known issues with Main Lift Station.

iii) Lagoon System

- Remove existing venturi aeration equipment.
- Install new Venturi aeration equipment.
- Add a generator to the lagoon site, which is to be used to operate aeration equipment during a power outage.
- Repair control structure as needed. This includes replacing any piping and valves as well as concrete rehabilitation that may be needed due to cracking, pitting, and spalling.
- Repair dike banks as needed. This includes removing invasive vegetation growing in the riprap and on the dikes, as it can damage the lagoon structure and harbor burrowing animals. Where riprap is not used, a thick stand of perennial grass should be present to prevent soil erosion. Site repairs also include replacing or adding riprap as needed.
- Remove existing baffle in Cell #2.
- Replace existing outfall pipe.

b) Surface Aerators

This option would be identical to the changes made in 1a above, apart from surface aerators being used instead of Venturi aeration.

c) Submerged Diffusers

This option would be identical to the changes made in 1b and 1a above, apart from submerged diffusers being used instead of Venturi and Surface aeration.

2. Alternative No. 2: Split Influent Wastewater Flow between Existing Cell #1 and Cell #3

Alternative No. 2 involves the rehabilitation of Elk Point's existing wastewater system. The alternative would update the existing system to ensure that wastewater can be treated through design year 2042. This option would update aeration equipment and change the existing piping network at the treatment facility. Currently wastewater influent enters Cell #1 (Northeast Cell), flowing to Cell #3 (Northwest Cell), and exiting the facility in Cell #2 (South Cell).

This option would split influent wastewater flow between Cell #1 and Cell #3, establishing both as the primary treatment cells. Splitting the influent wastewater flow would reduce BOD loading rates by increasing the total pond acreage. Cell #1 is 5.75 acres and Cell #3 is 5.25 acres, splitting the flow between both would create a total primary treatment area of 11 acres effectively reducing BOD<sub>5</sub> loading per acre. There are three different aeration options that will be examined in this PER including Venturi aerators, surface aerators, and submerged diffuser aerators. Each new primary cell would have aeration.

a) Venturi Aerators

i) Collection System and Lift Stations

- Repair known leaks in the collection system
- Repair any known issues with existing lift stations

ii) Pumping Station/Main Lift Station

- Repair any known issues with Main Lift Station

iii) Lagoon System

- Remove existing Venturi aeration equipment
- Install new piping and flow splitter to allow influent wastewater flow to Cell #1 and Cell #3
- Install new Venturi aeration equipment in Cell #1 and Cell #3
- Add a generator to the lagoon site, which is to be used to operate aeration equipment during a power outage
- Repair control structure as needed. This includes replacing any piping and valves as well as concrete rehabilitation that may be needed due to cracking, pitting, and spalling
- Repair dike banks as needed. This includes removing invasive vegetation growing in the riprap and on the dikes, as it can damage the lagoon structure and harbor burrowing animals. Where riprap is not used, a thick stand of perennial grass should be present to prevent soil erosion. Site repairs also include replacing or adding riprap as needed.
- Remove existing baffle in Cell #2
- Install new piping to allow influent wastewater flow from Cell #1 to Cell #2 and from Cell #3 to Cell #2

b) Surface Aerators

This option would be identical to the changes made in 2a above, apart from surface aerators being used instead of Venturi aeration.

c) Submerged Diffusers

This option would be identical to the changes made in 2b and 2a above, apart from submerged diffusers being used instead of Venturi and Surface aeration.

3. Alternative No. 3: Reverse Existing Flow Path with Existing Cell #2 as New Primary Cell with new aeration equipment

Alternative No. 3 involves the rehabilitation of Elk Point's existing wastewater system. The alternative would update the existing system to ensure that wastewater can be treated through design year 2042. This option would update aeration equipment and change the existing direction of wastewater flow at the treatment facility. Currently wastewater influent enters Cell #1 (Northeast Cell), flowing to Cell #3 (Northwest Cell), and exiting the facility in Cell #2 (South Cell).

The option would establish a new wastewater flow with influent entering Cell #2 flowing to Cell #1, exiting the facility in Cell #3. Changing the direction of influent wastewater flow would reduce BOD loading rates by increasing the total pond

acreage. Establishing Cell #2 as the new primary cell would increase the primary treatment acreage to 13 acres. This is an increase of 7.25 acres from the existing and would result in lower BOD<sub>5</sub> loading per acre. The lower per acre loading would allow for use of smaller venturi aerators and for less frequent aeration. There are three different aeration options that will be examined in this PER including Venturi aerators, surface aerators, and submerged diffuser aerators.

a) Venturi Aerators

i) Collection System and Lift Stations

- Repair known leaks in the collection system
- Repair any known issues with existing lift stations

ii) Pumping Station/Main Lift Station

- Repair any known issues with Main Lift Station

iii) Lagoon System

- Remove existing Venturi aeration equipment
- Install new Venturi aeration equipment in Cell #2
- Add a generator to the lagoon site, which is to be used to operate aeration equipment during a power outage
- Repair control structure as needed. This includes replacing any piping and valves as well as concrete rehabilitation that may be needed due to cracking, pitting, and spalling
- Repair dike banks as needed. This includes removing invasive vegetation growing in the riprap and on the dikes, as it can damage the lagoon structure and harbor burrowing animals. Where riprap is not used, a thick stand of perennial grass should be present to prevent soil erosion. Site repairs also include replacing or adding riprap as needed.
- Remove existing baffle in Cell #2
- Install new piping to allow influent wastewater flow to the South of Cell #2
- Cap and abandon existing effluent pipe from Cell #2 to existing outfall structure.
- Install new pipe network connecting Cell #2 and Cell #1 and connecting Cell #1 and Cell #3.
- Install new outfall piping from Cell #3 to existing outfall structure west of Cell #2.

b) Surface Aerators

This option would be identical to the changes made in 3a above, apart from surface aerators being used instead of Venturi aeration.

c) Submerged Diffusers

This option would be identical to the changes made in 3b and 3a above, apart from submerged diffusers being used instead of Venturi and Surface aeration.

#### 4. Disinfection Alternative No. 1: New UV Disinfection System

Disinfection can be added as a part of any of the first three listed alternatives. Adding a new UV disinfection system would reduce total coliform, fecal coliform, and E. Coli concentrations in the effluent wastewater. The chlorination and dechlorination processes could then be reduced or removed. The effectiveness of UV disinfection is based on the UV transmittance of the wastewater. High suspended solids reduces the efficiency of UV disinfection.

##### a) System Components

- All required UV modules fully equipped with lamps and quartz sleeves.
- Supports to install modules in concrete channel.
- 14.8 ft (4.5m) fully assembled quick disconnect power cabling from modules to ballast cabinet.
- Electrical Control 48 Housing the electrical equipment.
- Painted Steel Type 12 w/fan cooling (<104 deg F).
- WEDECO Eco-Touch Touchscreen HMI.
- Automatic wiping system including compressed air supply.
- Inlet baffle plate.
- Fixed finger weir.

#### D. Aeration

All aeration equipment included as recommendations use an estimated BOD<sub>5</sub> load of 1200 lbs/day. This is the maximum day BOD<sub>5</sub> load value from previous years. An average of 2.0 lbs of O<sub>2</sub> required per lb of BOD<sub>5</sub> was used to estimate aeration requirements. Using these values, the actual oxygen requirement (AOR) is estimated at 2400 lbs/day. From this the standard oxygen requirement (SOR) was estimated at 4000 lbs/day.

##### 1. Venturi Aerators

Improved venturi aeration equipment would include two (2) 6-inch AIR Jammer and two (2) new 1,400 gpm pumps. The total oxygen imparted to the wastewater would be dependent on the flow rate of the wastewater pumps and water depth in the lagoon. Due to the shallow depth of the pond, it is difficult to have a guaranteed oxygen output from the venturi aeration equipment.

##### 2. Surface Aerators

###### a) Triton 2.0 Aerators

The Triton 2.0 Aerator system would include six (6) AIRE-O<sub>2</sub> Triton 2.0 Aerators and six (6) Quad Float Assemblies. Each individual aerator would have 12 HP equaling a total of 72 HP. The units would provide 780 lbs O<sub>2</sub>/ day individually for a combined total of 4680 lbs O<sub>2</sub>/ day. This would exceed the estimated standard oxygen requirement (SOR) of 4000 lbs O<sub>2</sub>/ day.

###### b) Aspirating Aerators

The Aire-O<sub>2</sub> Aspirating Aerator system would include seven (7) 15 HP AIRE-O<sub>2</sub> Anti-Fouling Aspirating Aerators and seven (7) Tri-Float Assemblies. Each



individual aerator would have 15 HP equaling a total of 105 HP. The units would provide 650 lbs O<sub>2</sub>/ hour individually for a combined total of 4550 lbs O<sub>2</sub>/ day. This would exceed the estimated standard oxygen requirement (SOR) of 4000 lbs O<sub>2</sub>/ day.

3. Submerged Diffusers

The submerged diffuser system would include two (2) 75 HP Positive Displacement Blowers with a total of 132 fine bubble diffusers. Each diffuser can provide 13.5 SCFM for a total of 1,782 SCFM. Based on an assumed diffuser submergence of 4.4 feet the total output of 1,782 SCFM would be adequate to meet the 4000 lbs O<sub>2</sub>/ day oxygen requirement.

E. Advantages and Disadvantages

1. Aeration

a) Venturi Aeration

Advantages

- Allows reuse of existing lagoon system
- Equipment is familiar to staff
- Aeration system equipment is placed on edge of lagoon for easy access
- Equipment can be stored in an enclosure for freeze protection
- Not prone to fouling or clogging
- Low maintenance

Disadvantages

- Lower oxygen transfer at shallow depths

b) Surface Aerators

Advantages

- Easy to move
- Easy installation
- Good operation in shallow waters

Disadvantages

- May be prone to overturning under harsh weather conditions
- Less efficient than alternatives
- Limited wastewater mixing
- Ineffective in deep waters
- Difficult to access for repairs, especially in winter
- High maintenance

c) Submerged Diffusers

Advantages

- Higher oxygen transfer in deep ponds
- Near complete mixing from bottom to top
- Low maintenance
- Able to operate under different weather conditions

#### Disadvantages

- High annual operating cost
- Additional operator training required
- Immobile, unable to relocate equipment once built
- May require additional infrastructure on bottom of ponds
- Higher risk of fouling and clogging
- Less efficient in shallow ponds

## 2. Alternatives

### a) Alternative No. 1: Use Existing Flow Path with New Aeration Equipment

#### Advantages

- Least expensive option due to only aeration equipment being added
- Allows reuse of existing lagoon system
- Operation will be familiar to existing staff

#### Disadvantages

- Lowest treatment capacity of alternatives

### b) Alternative No. 2: Split Influent Wastewater Flow between Existing Cell #1 and Cell #3

#### Advantages

- Effectively increases primary treatment cell acreage
- Maintenance on individual primary treatment cells is easier

#### Disadvantages

- Removes one lagoon from series
- Additional piping is required to achieve

### c) Alternative No. 3: Reverse Existing Flow Path with Existing Cell #2 as New Primary Cell with New Aeration Equipment

#### Advantages

- Increases treatment capacity of facility, as largest cell will become new primary
- Lower operation and maintenance cost than other options

#### Disadvantages

- Additional piping is required to achieve

- Outfall structure may have to be moved
- Influent structure would have to be moved

d) Disinfection Alternative No. 1: New UV Disinfection System

Advantages

- Reduces chemicals required for disinfection

Disadvantages

- Increased electricity costs
- High initial project cost
- Potentially ineffective based on UV transmittance

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## V. OPINION OF PROBABLE COST

### A. General

Published and unpublished data on costs for similar construction projects were used to prepare the opinion of costs presented herein. The cost opinions presented herein are intended for use as guidelines in the decision-making process. Once the preparation of final drawings and specifications is underway, the cost opinion will be refined.

### B. Capital Costs

<b>Table 5.1: Opinion of Probable Cost on Alternative Aeration Methods</b>	
<b>Aeration Equipment</b>	<b>Cost</b>
Two (2) 6-Inch AIR Jammer and Two (2) New 1,400 gpm Pumps	\$320,000
Seven (7) 15 HP AIRE O2 Anti-Fouling Aspirating Aerators and Seven (7) Tri-Float Assemblies	\$190,000
Six (6) AIRE-O2 Triton 2.0 Aerators and Six (6) Quad-Float Assemblies	\$270,000
Two (2) 75 HP Positive Displacement Blowers and Blower Control Panel with Motor Starters	\$310,000
Note: Equipment only, cost does not include installation or electrical equipment	

<b>Table 5.2: Electricity Cost for Alternative Aeration Methods</b>					
	<b>Existing Venturi Aerators</b>	<b>New Venturi Aerators</b>	<b>New Surface Aerators (Aire O2 Aspirating Aerators)</b>	<b>New Surface Aerators (AIRE O2 Triton 2.0 Aerators)</b>	<b>Submerged Aeration System</b>
Electricity cost per day per total	\$170	\$220	\$230	\$130	\$330
Electricity cost per month per total	\$5,400	\$6,700	\$7,100	\$4,000	\$10,100
Electricity cost per year per total	\$63,000	\$79,000	\$83,000	\$48,000	\$120,000
Note: Costs assume 24 hours of operation each day					

<b>Table 5.3: Alternative No. 1: Use Existing Flow Path with New Aeration Equipment</b>	
<b>Item</b>	<b>Cost</b>
Mobilization	\$100,000
Sitework	\$30,000
Existing Lagoons Rehabilitation	
Two (2) 6-Inch AIR Jammer and Two (2) New 1,400 gpm Pumps	\$320,000
Standby Generator	\$120,000
Lagoon Bank Improvements	\$180,000
Control Structure Improvements	\$90,000
Electrical and Controls	\$130,000
Construction Contingencies (30%)	\$290,000
<b>Subtotal</b>	<b>\$1,260,000</b>
Engineering, Administration, and Legal (20%)	\$250,000
<b>Total Opinion of Project Cost</b>	<b>\$1.4 – \$1.6 M</b>

<b>Table 5.4: Alternative No. 2: Split Influent Wastewater Flow between Existing Cell #1 and Cell #3</b>	
<b>Item</b>	<b>Cost</b>
Mobilization	\$120,000
Sitework	\$40,000
Existing Lagoons Rehabilitation	
Two (2) 6-Inch AIR Jammer and Two (2) New 1,400 gpm Pumps	\$320,000
Standby Generator	\$120,000
Lagoon Bank Improvements	\$180,000
Control Structure Improvements	\$90,000
Electrical and Controls	\$130,000
Piping and Valves	\$150,000
Construction Contingencies (30%)	\$300,000
<b>Subtotal</b>	<b>\$1,450,000</b>
Engineering, Administration, and Legal (20%)	\$290,000
<b>Total Opinion of Project Cost</b>	<b>\$1.5 – \$1.9 M</b>

<b>Table 5.5: Alternative No. 3: Reverse Existing Flow Path with Existing Cell #2 as New Primary Cell with New Aeration Equipment</b>	
<b>Item</b>	<b>Cost</b>
Mobilization	\$160,000
Sitework	\$50,000
Existing Lagoons Rehabilitation	
Two (2) 6-Inch AIR Jammer and Two (2) New 1,400 gpm Pumps	\$320,000
Standby Generator	\$120,000
Lagoon Bank Improvements	\$180,000
Control Structure Improvements	\$90,000
Electrical and Controls	\$130,000
Outfall Replacement	\$120,000
Piping and Valves	\$180,000
Construction Contingencies (30%)	\$350,000
<b>Subtotal</b>	<b>\$1,700,000</b>
Engineering, Administration, and Legal (20%)	\$340,000
<b>Total Opinion of Project Cost</b>	<b>\$1.8 - \$2.2 M</b>

<b>Table 5.6: Disinfection Alternative No. 1: New UV Disinfection System</b>	
<b>Item</b>	<b>Cost to Rehabilitate Existing System</b>
UV Disinfection Unit	\$100,000

#### C. Operation and Maintenance Costs

The operation, maintenance, and replacement (OM&R) costs can significantly affect the overall cost of wastewater treatment. Major components of the O&M costs include employee salaries and benefits, administration, chemicals, utilities, and other non-capital related expenditures. Additional cash reserves must also be budgeted for short-lived assets that require replacement within a 15-year period. Short-lived assets may include pumps, chemical feed equipment, and other equipment that may require replacement within the design life of the system. OM&R costs for each alternative are presented in Table 5.7. These OM&R estimates may vary based on the city's needs. All costs shown below are in 2022 dollars.

<b>Table 5.7: Yearly Operations, Maintenance and Replacement Costs</b>		
<b>Item</b>	<b>Existing Venturi Aerators</b>	<b>New Venturi Aerators</b>
Salaries & Benefits	\$100,000	\$100,000
Insurance, Licenses, Taxes & Bonds	\$35,000	\$35,000
Repairs	\$35,000	\$35,000
Professional Services/Fee	\$50,000	\$50,000
Electric & Utilities	\$65,000	\$80,000
Chemical, Equipment, & Supplies	\$20,000	\$20,000
Improvements other than Buildings	\$270,000	\$270,000
<b>Total</b>	<b>\$575,000</b>	<b>\$590,000</b>

D. Annual Project Costs

Determination of annual project costs is a useful measure to compare multiple alternatives on a financial basis. Annual project costs are the sum of the anticipated OM&R costs and the annualized capital costs. Annualized capital costs represent the yearly sum of money needed to finance a capital expenditure over a specified period and interest rate (i.e., capital recovery). Annual project costs are calculated for each alternative and presented in Table 5.8.

Table 5.8: Estimated Annual Cost			
Item	Alternative No. 1	Alternative No. 2	Alternative No. 3
Total Project Capital Cost	\$1,500,000	\$1,750,000	\$2,050,000
Annualized Project Cost	\$91,735	\$107,024	\$125,371
Annual OM&R Cost	\$590,000	\$590,000	\$590,000
Total Annual Cost	\$681,735	\$697,024	\$715,371
*Assumes 30-year loan term at 1.75% interest rate plus 0.25% annual servicing fee	0.02	0.02	0.02
Loan Years	20	20	20
<b>Alternative Explanations:</b> (1) Use existing flow path with new aeration equipment. (2) Split influent wastewater flow between existing Cell #1 and Cell #3. (3) Reverse existing flow path with existing Cell #2 as new primary cell with new aeration equipment.			



## VI. RECOMMENDATIONS AND IMPLEMENTATIONS

### A. Recommended Improvements

Choosing a recommendation requires evaluating the City of Elk Point's needs and goals, financial status, and wastewater treatment requirements. Based on these components, it is recommended that the City of Elk Point choose *Alternative No. 3: Reverse Existing Flow Path with Existing Cell #2 as New Primary Cell with Six (6) AIRE-O2 Triton 2.0 Aerators and Six (6) Quad-Float Assemblies*.

The AIRE-O2 Triton 2.0 Aerators can provide 32.4 lbs O<sub>2</sub> / hour per unit, equaling a total of 194.4 lbs O<sub>2</sub> / hour with 6 units. The estimated Standard Oxygen Requirement (SOR) to treat the maximum day BOD<sub>5</sub> load in Elk Point was estimated at 168.0 lbs O<sub>2</sub> / hour. This indicates that the new aerators would provide more oxygen than required for treatment. During typical days the aerators could be run less frequently to save on operation costs. During peak days the City would have the ability to operate at maximum aeration output to prevent overloading.

This alternative is more expensive than solely adding aeration to the existing system but will provide long term treatment as Elk Point is a growing City. This alternative is the most cost-effective long-term solution for Elk Point's existing wastewater issues. The *Six (6) AIRE-O2 Triton 2.0 Aerators and Six (6) Quad-Float Assemblies* are more expensive upfront than the alternative surface aerators presented but run more efficiently. Therefore, in the long term, the *Six (6) AIRE-O2 Triton 2.0 Aerators and Six (6) Quad-Float Assemblies* would be more cost effective for the City. In the past, the City of Elk Point used surface aerators to treat wastewater. The previous surface aerators were removed due to concerns of overturning and difficulty of operation. The new system will be designed with this taken into consideration.

### B. Impact on User Rates

Table 6.1: Estimated User Costs				
Item	Existing	Alternative No. 1	Alternative No. 2	Alternative No. 3
Residential Average Monthly Bill	\$26.00	\$29.06	\$29.57	\$30.21
Residential Average Monthly Bill (Low-Income)	\$22.00	\$22.00	\$22.00	\$22.00
Commercial Average Monthly Bill	\$45.65	\$49.48	\$50.11	\$50.91
<b>Alternative No. 1:</b> Use existing flow path with new aeration equipment. <b>Alternative No. 2:</b> Split influent wastewater flow between existing Cell #1 and Cell #3. <b>Alternative No. 3:</b> Reverse existing flow path with existing Cell #2 as new primary cell with new aeration equipment.				

### C. Project Funding

There are several funding options the City of Elk Point can explore to help finance these improvements.

#### 1. Bonding

The city could sell general obligation, local improvements, or revenue bonds to raise the capital costs to improve the treatment facility. The proceeds of the bond would

need to be repaid, either through property taxes, assessments, or user charges to the system.

2. Clean Water State Revolving Fund

The Clean Water State Revolving Fund (SRF) Program was established to provide financial assistance for water pollution control projects. It provides low interest loans to government entities for clean water and non-point source pollution control projects.

To be eligible for the Drinking Water SRF program, the applicant must be 1) a government entity with the authority to generate revenues and to repay either a general obligation, revenue obligation, sales tax obligation, or combination of these bonds, or 2) a non-profit corporation with the authority to generate revenues and repay a loan. The project must be on the State Water Plan prior to submitting the funding application.

The project/activity must be identified and included as a potential project in the Intended Use Plan (IUP). The IUP identifies potential drinking water projects. The list of potential projects incorporates a priority ranking system to comply with Project Priority List requirements as per federal regulations.

D. Implementation Schedule

The proposed implementation schedule for the wastewater treatment facility improvements is shown below in Table 6.2.

Table 6.2: Project Implementation Schedule	
Item	Date
Submit Preliminary Engineering Report to SDDANR	July 2023
City Council Approval of Preliminary Engineering Report	July 2023
Design Engineering	September 2023 – February 2024
Anticipated Preliminary Engineering Report Approval	November 2023
Submit Construction Permit Application	December 2023
Construction Permit Issued	February 2024
Bid Construction Project	March 2024
Award Construction Project	April 2024
Start Construction	June 2024
Complete Construction	June 2025

The proposed SDDANR timelines/deadlines for the wastewater treatment facility improvements are shown below in Table 6.3.

Table 6.3: SD DANR Timeline/Deadlines	
Item	Date
Hire Professional Engineer Licensed in South Dakota	May 1, 2022
Submit Compliance Progress Report to SDDANR	November 1, 2022
Submit Preliminary Engineering Report	September 1, 2023
Submit Plans and Specifications	August 1, 2024

Begin Construction	April 1, 2025
Submit Compliance Progress Report to SDDANR	October 1, 2025, and April 1, 2026
Complete Construction and Achieve Compliance with Final Effluent Limits	September 1, 2026

## Appendix A: City of Elk Point Surface Water Discharge Permit

Permit No.: SD0022080

**SOUTH DAKOTA DEPARTMENT OF AGRICULTURE  
AND NATURAL RESOURCES**

**Surface Water Discharge Permit  
Authorizing Discharge  
Under The South Dakota Surface Water Discharge System**

In compliance with the provisions of the South Dakota Water Pollution Control Act and the Administrative Rules of South Dakota, Article 74:52,

***City of Elk Point***

is authorized under this permit to discharge to

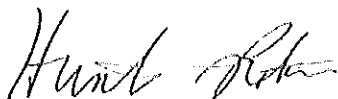
***an Unnamed Tributary of the Missouri River***

from its wastewater treatment facility located about one mile southwest of the city in the Southwest  $\frac{1}{4}$  of Section 24 and the Northwest  $\frac{1}{4}$  of Section 25, all in Township 91 North, Range 50 West in Union County, South Dakota (Latitude 42.677156°, Longitude -96.703160°), in accordance with discharge points, effluent limits, monitoring requirements, and other conditions set forth herein. Authorization is limited to those outfalls specifically listed in the permit. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the South Dakota Water Pollution Control Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

This permit shall become effective February 1, 2022.

This permit and the authorization to discharge shall expire at midnight, January 31, 2027.

Signed this 31st day of January 2022.



Authorized Permitting Official

**Hunter Roberts**  
Secretary  
Department of Agriculture and Natural Resources

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## APPENDIX A – Emergency Discharge and SSO Reporting Form

## 1.0 DEFINITIONS

**"30-day (and monthly) Average"** means the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.

**"7-day (and weekly) Average"** means the arithmetic mean of all samples collected during a consecutive 7 day period or calendar week, whichever is applicable. The calendar week that begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains the Saturday.

**"Acute Toxicity"** occurs when in the  $LC_{50}$  test when 50 percent or more mortality is observed for either species at any effluent concentration which is equivalent to  $\geq 1.0$  TU<sub>a</sub>. Mortality in the control must simultaneously be 10 percent or less for the effluent results to be considered valid.

The **"Approval Authority"** is the Secretary of the South Dakota Department of Agriculture and Natural Resources.

**"ARSD"** means the Administrative Rules of South Dakota. These often referred to as "Standards".

An **"Authorized Release"** is a discharge from a permitted outfall that meets all permit conditions and effluent limits.

**"Biosolids"** means any sewage sludge or material derived from sludge that can be beneficially used. Beneficial use includes, but is not limited to, land application to agricultural land, forest land, a reclamation site or sale or give away to the public for home lawn and garden use.

**"BOD<sub>5</sub>"** means Five-Day Biochemical Oxygen Demand. BOD is a measurement of the amount of oxygen utilized by the decomposition of organic material, over a specified time period (usually 5 days) in a sample.

A **"Bypass"** is the intentional diversion of waste streams from any portion of a collection system or treatment facility other than the permitted outfall(s). Bypasses may result in releases from the sanitary sewer collection system (see **"Sanitary Sewer Overflow"**) or emergency releases from the treatment facility (see **"Emergency Discharge"**). If a bypass results in a release of wastewater, it shall be sampled and reported as either a sanitary sewer overflow from the collection system or an emergency discharge from the treatment facility.

**"Chronic Toxicity"** occurs when in the  $IC_{25}$  test when the survival, growth, or reproduction, as applicable, for either test species, at the effluent dilution(s) designated in this permit, is significantly less (at the 95 percent confidence level) than that observed for the control specimens.



**“Composite Samples”** shall be flow proportioned. The composite sample shall contain at least four samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:

1. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;
2. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;
3. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every “X” gallons of flow); and,
4. Continuous collection of sample, with sample collection rate proportional to flow rate.

**“Daily Maximum (Daily Max.)”** is the maximum value allowable in any single sample or instantaneous measurement.

**“DMR”** means Discharge Monitoring Report, EPA Form 3320-1, or a report filed electronically by an EPA-approved electronic system, or other forms provided by the Department which are used to report sampling data.

An **“Emergency Discharge”** is a discharge from the treatment or containment system through a release structure or over or through retention dikes or walls. An emergency discharge is distinguished from a sanitary sewer overflow in that a sanitary sewer overflow discharges wastewater prior to reaching the treatment or containment system. An emergency discharge is an enforceable violation of the permit unless it is an allowable bypass that does not cause effluent limitations to be exceeded, an anticipated bypass approved by the Secretary, or an unanticipated bypass allowed under Section 3.2 – Prohibition of Bypasses, Emergency Discharges, and SSOs.

**“EPA”** or **“US EPA”** means United States Environmental Protection Agency.

A **“Grab Sample,”** for monitoring requirements, is a single “dip and take” sample collected at a representative point in the discharge stream.

An **“Industrial User”** is a non-domestic source of pollutants discharged into a publicly owned treatment works.

**“Inhibition Concentration, 25 Percent (IC<sub>25</sub>)”** is a point estimate of the toxicant concentration that would cause a 25-percent reduction in a biological measurement (e.g., reproduction, growth), calculated from a continuous model (i.e., Interpolation Method).

An **“Instantaneous Measurement,”** for monitoring requirements, is a single reading, observation, or measurement either taken at the facility or within 15 minutes of the sample.

**“Instream Waste Concentration (IWC)”** is the concentration of a toxicant in the receiving water after mixing. It is also referred to as the receiving water concentration (RWC).

**“Lethal Concentration, 50 Percent (LC<sub>50</sub>)”** is the toxic or effluent concentration that would cause mortality in 50 percent of the test organisms over a specified period of time.

**“MGD”** is the measure of flow rate meaning million gallons per day.

**“Mixing Zone (Zone of mixing)”** is an area in a stream where an effluent or discharge mixes with the upstream water under ARSD 74:51:01:01. A mixing zone for wastewater discharges to flowing waters is allowed under ARSD 74:51:01:26. Lakes are not allowed a mixing zone under ARSD 74:51:01:27.

**“No Observed Effect Concentration (NOEC)”** is the highest tested concentration of an effluent or a toxicant that causes no observable adverse effect on the test species (i.e., the highest concentration of toxicant at which the values for the observed responses are not statistically different from the controls). NOEC is determined using hypothesis testing.

**“pH”** is the measure of the hydrogen ion concentration of water or wastewater; expressed as the negative log of the hydrogen ion concentration. A pH of 7 is neutral. A pH less than 7 is acidic, and a pH greater than 7 is basic.

**“PTI”** means Preliminary Toxicity Investigation. Up to a 30-day period where the permittee investigates the cause(s) of a whole effluent toxicity exceedance and if the toxicity is known, includes a proposal for its elimination.

A **“Publicly-Owned Treatment Works”** or **“POTW”** is any device or system used in the treatment, including recycling and reclamation, of municipal sewage or industrial waste of a liquid nature that is owned by the state or a municipality. This term includes sewers, pipes, or other conveyances only if they convey wastewater to a publicly owned treatment works providing treatment.

**“Reasonable Potential (RP)”** is the likelihood that an effluent will cause or contribute to an excursion above a water quality standard based on a number of factors, including the use of data (e.g. whole effluent toxicity test data). In the context of this document, references to RP and WET limits include both lethal and sub-lethal effects.

A **“Sanitary Sewer Overflow”** or **“SSO”** is the intentional or unintentional discharge of untreated sewage from the sanitary sewer collection system, including sewer lines, manholes, lift stations, etc. An SSO is an enforceable violation of the permit unless it is an allowable bypass that does not cause effluent limitations to be exceeded, an anticipated bypass approved by the Secretary, or an unanticipated bypass allowed under Section 3.2 – Prohibition of Bypasses, Emergency Discharges, and SSOs.

**“SDDANR”** means the South Dakota Department of Agriculture and Natural Resources.

**“Secretary”** means the Secretary of the South Dakota Department of Agriculture and Natural Resources, or authorized representative.

**“Severe Property Damage”** is substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

**“Sewage Sludge”** is any solid, semi-solid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. Sewage sludge includes but is not limited to solids removed during primary, secondary or advanced wastewater treatment, scum, septage, portable toilet pumpings, and sewage sludge products. Sewage sludge does not include grit, screenings, or ash generated during the incineration of sewage sludge.

A **“Significant Industrial User”** is defined as an industrial user discharging to a publicly-owned treatment works (POTW) that satisfies any of the following:

1. Is subject to Categorical Pretreatment Standards under ARSD Chapter 74:52:10 (a.b.r. 40 CFR 403.6 and 40 CFR chapter I, subchapter N);
2. Discharges an average of 25,000 gallons per day or more of process wastewater to the publicly owned treatment works (excluding sanitary, non-contact cooling water, and boiler blowdown wastewater);
3. Contributes a process wastewater that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the publicly owned treatment works; or,
4. Is designated as such by the Secretary on the basis that the Industrial User has a reasonable potential for adversely affecting the publicly owned treatment works or for violating any pretreatment standard or requirement.

**“Surface Water Discharge (SWD) Permitting Program”** is the state program that regulates the discharge of pollutants into the state’s waters. This is the state’s implementation of the federal NPDES program.

**“Test Acceptability Criteria (TAC)”** are specific criteria for determining whether toxicity test results are acceptable, pursuant to EPA’s WET test methods in 40 CFR 136 (additional TAC may be established by the Department). The effluent and reference toxicant must meet specific criteria as defined in the test method.

**“Toxic Unit - Acute ( $TU_a$ )”** is 100 times the reciprocal of the effluent concentration that causes 50 percent of the organisms to die in an acute toxicity test ( $TU_a = 100/LC_{50}$ ) (see  $LC_{50}$ ).

**“Toxic Unit - Chronic ( $TU_c$ )”** is 100 times the reciprocal of the effluent concentration that causes no observable effect on the test organisms in a chronic toxicity test ( $TU_c = 100/IC_{25}$ ).

**“Toxicity Identification Evaluation (TIE)”** is a set of site-specific procedures used to identify the specific chemical(s) causing effluent toxicity.

**“Toxicity Reduction Evaluation (TRE)”** is a site-specific study conducted in a step-wise process to identify the causative agents of effluent toxicity, isolate the source of toxicity,

evaluate the effectiveness of toxicity control options, and then confirm the reduction in effluent toxicity after the control measures are put in place.

**"TSS"** means Total Suspended Solids. TSS is a measure of the filterable solids present in a sample.

**"Upset"** means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

**"Water Quality-based Effluent Limit (WQBEL)"** is a NPDES permit limit that is developed to assure protection of aquatic life or human health consistent with applicable State water quality standards.

**"Whole Effluent Toxicity (WET)"** is the total toxic effect of an effluent measured directly with a toxicity test.

**"Whole Effluent Toxicity (WET) Test"** is a procedure using living organisms to determine whether a chemical or an effluent is toxic. A toxicity test measures the degree of the effect of a specific chemical or effluent on exposed test organisms.

## **2.0 PERMIT COVERAGE**

### **2.1 Permit Transfers**

1. Coverage under this permit may be transferred to a new permittee if:
  - a. The signatory authority notifies the Secretary at least 30 days in advance of the proposed transfer date;
  - b. The notice includes a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them; and
  - c. The new permittee submits a Certification of Applicant form certifying the new permittee is qualified to perform the obligations of a permit holder in accordance with South Dakota Codified Law 1-40-27.
2. The Secretary will notify the existing and new permittee of his or her intent to transfer, modify, or revoke and reissue the permit based on the information received and other permit information.

## **2.2 Reopener Provisions**

This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limits (and compliance schedules, if necessary), or other appropriate requirements if one or more of the following events occurs:

1. **Water Quality Standards:** The water quality standards of the receiving waters applicable to this permit are modified in such a manner as to require different effluent limits than contained in this permit;
2. **Water Quality Management Plan:** A revision to the current water quality management plan is approved and adopted that calls for different effluent limits than contained in this permit;
3. **Effluent Guidelines:** Effluent limit guidelines are promulgated or revised for point sources covered by this permit;
4. **Total Maximum Daily Load:** Additional controls in the permit are necessary to implement a total maximum daily load approved by the Secretary and/or EPA;
5. **Noncompliance:** The discharger is a significant contributor of pollution to waters of the state, presents a health hazard, or is in noncompliance with the conditions of the permit;
6. **Whole Effluent Toxicity:** Whole effluent toxicity is detected in the discharge; this permit may be reopened and modified (following proper administrative procedures) to include whole effluent toxicity (WET) testing, a WET limit, a compliance date, additional or modified numerical limits, or any other conditions related to the control of toxicants if toxicity is detected during the life of this permit;
7. **Pretreatment Program:** The permittee is required to develop and implement a pretreatment program, regulating indirect discharges of wastewater into its publicly owned treatment works; or
8. **Other Changes:** Other conditions or standards change so that the discharge no longer qualifies for this permit, such as the permittee being designated as a major discharger, changes in necessary influent or effluent pollutant monitoring, additional industrial pretreatment requirements become applicable to the permittee, or other items.

## **2.3 Duty to Reapply**

If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee must apply for and obtain coverage under a new permit. The permit application must be submitted at least 180 days before the expiration date of this permit. Periodically during the term of this permit and at the time of reissuance, the permittee may be requested to reaffirm its eligibility to discharge under this permit.

## **2.4 Continuation of the Expired Permit**

An expired permit continues in full force and effect until a new permit is issued. If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee must submit an application at least 180 days before the expiration date of the permit.

## **2.5 Property Rights**

1. The Secretary's issuance of this permit, adoption of design criteria, and approval of plans and specifications, does not convey any property rights of any sort, any exclusive privileges, any authorization to damage, injure or use any private property, any authority to invade personal rights, any authority to violate federal, state, or local laws or regulations, or any taking, condemnation or use of eminent domain against any property owned by third parties.
2. The State does not warrant that the permittee's compliance with this permit, design criteria, approved plans and specifications, and operation under this permit, will not cause damage, injury or use of private property, an invasion of personal rights, or violation of federal, state or local laws or regulations. The permittee is solely and severally liable for all damage, injury or use of private property, invasion of personal rights, infringement of federal, state or local laws and regulations, or taking or condemnation of property owned by third parties, that may result from actions taken under the permit.

## **2.6 Permit Actions**

The Secretary may modify, revoke and reissue, or terminate coverage under this permit for cause, including failure to comply with any provision of this permit or any condition imposed by the Secretary upon granting coverage under this permit. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

## **2.7 Severability**

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

# **3.0 EFFLUENT LIMITS**

## **3.1 Description of Discharge Points**

The authorization to discharge provided under this permit is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under this permit are a violation of the South Dakota Water Pollution Control

Act and could subject the person(s) responsible for such discharge to penalties under Section 34A-2-75 of the Act. Knowingly discharging from an unauthorized location or failing to report a discharge as required by the permit could subject the permittee to penalties as provided under the South Dakota Water Pollution Control Act.

**Outfall**

**Number**

**Description of Discharge Points**

002

Any discharge from the discharge structure in Cell #2 to the unnamed tributary of the Missouri River (Latitude 42.674757°, Longitude -96.705978°).

**3.2 Prohibition of Bypasses, Emergency Discharges, and SSOs**

1. The permittee may allow bypasses to occur that do not result in a discharge and will not result in a violation of the effluent limits, but only if for essential maintenance to ensure efficient operation.
2. An emergency discharge, sanitary sewer overflow, or bypass, other than that described in Paragraph 1 above, is prohibited and the Secretary may take enforcement action against a permittee, unless:
  - a. The emergency discharge, SSO, or bypass was unavoidable to prevent loss of life, threat to public health, personal injury, or severe property damage;
  - b. There were no feasible alternatives to the emergency discharge, SSO, or bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent an emergency discharge, SSO, or bypass that occurred during normal periods of equipment downtime or preventive maintenance; and
  - c. The permittee submitted notices as required in **Section 4.2 – Effluent Violation, Bypass, Emergency Discharge, and SSO Reporting Requirements**.
3. The permittee shall sample an emergency discharge or SSO for the parameters and at the frequencies listed in **Section 3.8 – Self-Monitoring Requirements - Sanitary Sewer Overflows and Emergency Discharges**. The sample results shall be reported in accordance with the reporting requirements listed in **Section 4.1 – Reporting of Monitoring Results**.
4. The Secretary may approve an emergency discharge, SSO, or bypass, after considering its adverse effects, if the Secretary determines that it will meet the three conditions listed above in Paragraph 2.
5. If a bypass, emergency discharge, or sanitary sewer overflow occurs or is expected to occur, the permittee shall take the appropriate measures to minimize

the discharge of pollutants. Such measures may include the closing of facilities that contribute wastewater to the sewer system until the discharge is terminated.

### 3.3 Proper Operation and Maintenance

1. The permittee shall at all times properly operate and maintain all facilities and treatment and control systems that are installed or used by the permittee to achieve compliance with the conditions of this permit or other conditions required by the Secretary upon issuance.
2. Proper operation and maintenance may include adequate laboratory controls and appropriate quality assurance procedures.
3. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
4. This may include the maintenance of freeboard levels of lagoons or holding ponds.

### 3.4 Inspection Requirements

The permittee shall inspect its wastewater treatment facility, outfall structures, and lift stations regularly as outlined below. The inspections shall be conducted to determine if a discharge is occurring, has occurred since the previous inspection, and/or if a discharge is likely to occur before the next inspection. In addition, the inspections shall be performed to determine if proper operation and maintenance procedures are being undertaken at the wastewater treatment facility and lift stations. The permittee shall maintain a notebook recording information obtained during the inspection.

1. **Facility Inspections.** The permittee shall inspect the facility and discharge location on at least a **monthly** basis. During a discharge, the permittee shall inspect the facility and discharge location on at least a **daily** basis. At a minimum, the notebook shall include the following:
  - a. Date and time of the inspection;
  - b. Name of the inspector(s);
  - c. The facility's discharge status;
  - d. The measured amount of freeboard or water depth in each pond;
  - e. Identification of operational problems and/or maintenance problems;
  - f. Recommendations, as appropriate, to remedy identified problems;
  - g. A brief description of any actions taken with regard to problems identified; and,
  - h. Other information, as appropriate.



2. **Lift Station Inspections.** The permittee shall inspect each lift station on at least a **weekly** basis. The inspections shall be performed to determine if proper operation and maintenance procedures are being undertaken and verify no sanitary sewer overflows are occurring or have occurred. During any sanitary sewer overflow, the lift stations shall be inspected on a **daily** basis. At a minimum, the notebook shall include the following for each lift station:
  - a. Date and time of the inspection;
  - b. Name of the inspector(s);
  - c. Whether a sanitary sewer overflow is occurring or has occurred;
  - d. Identification of operational problems and/or maintenance problems;
  - e. Cleaning of screenings, if applicable;
  - f. Testing of alarms, if applicable;
  - g. Hour meter readings;
  - h. Recommendations, as appropriate, to remedy identified problems;
  - i. A brief description of any actions taken with regard to problems identified; and,
  - j. Other information, as appropriate.
3. The permittee shall maintain the notebook(s) for the facility and each lift station in accordance with proper record-keeping procedures and shall make the notebook(s) available for inspection, upon request, by the Secretary or the US EPA.

### 3.5 Construction Schedule

1. The permittee shall achieve compliance with the effluent limits specified for discharges in accordance with the following schedule:
  - a. The permittee shall hire a professional engineer licensed in the state of South Dakota by **May 1, 2022**. The professional engineer shall evaluate the treatment system and develop a preliminary engineering report which includes treatment and operational options for reducing BOD<sub>5</sub>, TSS, and Total Coliform levels in the discharge.
  - b. The permittee shall submit a compliance progress report to SDDANR on **November 1, 2022**. This report shall include details on the progress of developing a preliminary engineering report for the facility, as well as any delays or setbacks in the process. Any expectation of delays of milestone achievements shall also be noted in the report.
  - c. The permittee shall submit a preliminary engineering report developed by the professional engineer to the department by **September 1, 2023**.

- d. The permittee shall submit plans and specifications for the necessary upgrades by **August 1, 2024**.
  - e. The permittee shall start construction or other necessary adjustments to the wastewater treatment process and operations by **April 1, 2025**.
  - f. The permittee shall submit compliance progress reports to SDDANR on **October 1, 2025** and **April 1, 2026**. These reports shall include details on the progress of upgrades and operational changes to come into compliance with the final effluent limits for BOD<sub>5</sub>, TSS, and Total Coliforms, as well as any delays or setbacks in the process. Any expectation of delays of milestone achievements shall also be noted in the reports.
  - g. By **September 1, 2026**, the facility shall complete any necessary adjustments to the wastewater treatment processes and operations to comply with the final effluent limits for BOD<sub>5</sub>, TSS, and Total Coliforms.
2. The milestones must be completed by the date specified. The permittee shall submit to the SDDANR a written notice of compliance or noncompliance with each milestone by the date specified above. If the permittee is not in compliance with the milestone, the notice shall include the cause of any noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

### 3.6 Pre-Discharge Sampling Requirements

1. The permittee shall receive permission from SDDANR to discharge prior to the start of any discharge from the facility. If a discharge occurs without permission from SDDANR, then the discharge may be considered a permit violation. The permittee shall collect a grab sample from each cell from which it will discharge and have the sample analyzed for the parameters listed below. The permittee shall call SDDANR at (605) 773-3351 to request permission for the discharge and shall provide SDDANR with the sample results for the following parameters:
  - a. Five-Day Biochemical Oxygen Demand (BOD<sub>5</sub>), mg/L;
  - b. Total Suspended Solids (TSS), mg/L;
  - c. pH, s.u.;
  - d. *Escherichia coli* (*E. coli*), no./100 mL;
  - e. Total Coliform, no./100 mL;
  - f. Ammonia-Nitrogen (as N), mg/L; and
  - g. Water Temperature, °C;
2. The request to discharge shall explain why a discharge is needed, when the discharge would start, the expected duration of the discharge, the approximate volume of water to be discharged, and the estimated flow conditions of the receiving stream.

3. No discharge shall occur until permission has been granted by the Secretary.

**3.7 Effluent Limits and Self-Monitoring Requirements – *Outfall 002***

1. No discharge shall occur until permission for discharge is granted by the South Dakota Department of Agriculture and Natural Resources. The permittee shall sample its wastewater in accordance with **Section 3.6 – Pre-Discharge Sampling Requirements** and provide the results to SDDANR.
2. Upon the effective date of this permit and lasting through the life of the permit, the quality of effluent discharged by the facility shall, as a minimum, be monitored and meet the effluent limits as set forth in the following table. Sampling shall occur at the Outfall 002 discharge structure, unless alternative sampling locations have been approved by the Secretary. The permittee shall report the monitoring results in accordance with **Section 4.1 – Reporting of Monitoring Results**.

Effluent Parameter		Effluent Limit and Reporting Values			Monitoring Requirements	
		30-Day Average <sup>1</sup>	7-Day Average <sup>1</sup>	Daily Maximum <sup>1</sup>	Frequency	Sample Type
Five-Day Biochemical Oxygen Demand (BOD <sub>5</sub> )		30 mg/L	45 mg/L	--	3 Times/Week <sup>2</sup>	24-hour Composite
Total Suspended Solids (TSS) <sup>3</sup>		30 mg/L	45 mg/L	--	3 Times/Week <sup>2</sup>	24-hour Composite
<i>Escherichia coli</i> ( <i>E. coli</i> ) <sup>4</sup>	May 1 – Sep 30	126 per 100 mL	--	235 per 100 mL	3 Times/Week <sup>2</sup>	Grab
Total Coliform <sup>4</sup>		5,000 per 100 mL	--	20,000 per 100 mL	3 Times/Week <sup>2</sup>	Grab
Total Residual Chlorine <sup>5, 6</sup>		--	--	0.019 mg/L	3 Times/Week <sup>2</sup>	Grab
pH		The pH of the discharge shall not be less than 6.5 standard units or greater than 9.0 standard units in any sample.			3 Times/Week <sup>2, 8</sup>	Instantaneous <sup>9</sup>
Water Temperature <sup>7</sup>		Report, °C	--	Report, °C	3 Times/Week <sup>2, 8</sup>	Instantaneous <sup>10</sup>
Flow Rate <sup>7</sup>		Report, MGD	--	Report, MGD	3 Times/Week <sup>2</sup>	Instantaneous
Ammonia-Nitrogen (as N) <sup>7, 11</sup>		Report, mg/L	--	Report, mg/L	3 Times/Week <sup>2</sup>	24-hour Composite
Total Nitrogen (as N) <sup>7</sup>		--	--	Report, mg/L	Once per Discharge	Grab
Total Phosphorus (as P) <sup>7</sup>		--	--	Report, mg/L	Once per Discharge	Grab
Duration of Discharge <sup>7</sup>		Report Monthly Total, Days			Monthly	Calculate
Total Flow <sup>7</sup>		Report Monthly Total, Million Gallons			Monthly	Calculate
No chemicals, such as chlorine, shall be used without prior written permission from the Secretary.						

<sup>1</sup> See Section 1.0 - Definitions.

<sup>2</sup> If a single, continuous discharge's duration is less than or equal to three days, the permittee shall take one sample per day. For a single, continuous discharge that is greater than three days and less than or equal to seven days, three samples shall be taken during the discharge. For discharges greater than seven days, three samples shall be taken during the first seven days of the discharge and then one sample shall be

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taken per week of discharge after that. All of the samples collected during the 7-day or 30-day period are to be used in determining the averages. The permittee always has the option of collecting additional samples if appropriate.

- <sup>3</sup> If analytical results for BOD<sub>5</sub> show compliance with the permit limits, the permittee may request TSS permit limits of 90 mg/L (30-day average) and 135 mg/L (7-day average). **The Secretary may approve these alternate limits without additional public notice.**
- <sup>4</sup> For *E. coli* and total coliforms, if a minimum of five samples are collected in a calendar month, all of the samples collected are to be used in determining the geometric mean. Samples are to be collected at the same time as BOD<sub>5</sub>, TSS, etc. If less than five samples are taken during any calendar month, the daily maximum effluent limit still applies. This sampling protocol for *E. coli* only applies if the discharge occurs between May 1 and September 30.
- <sup>5</sup> The effluent limit for total residual chlorine only applies when the facility is chlorinating.
- <sup>6</sup> SDDANR considers the analytical detection limit for total residual chlorine to be 0.05 mg/L. If the effluent value is less than the analytical detection limit, "below detection level" shall be used for reporting purposes.
- <sup>7</sup> This parameter shall be monitored and reported, but does not have an effluent limit associated with it.
- <sup>8</sup> The pH and temperature of the effluent shall be determined when the ammonia samples are collected.
- <sup>9</sup> The pH shall be taken within 15 minutes of sample collection with a pH meter. The pH meter must be capable of simultaneous calibration to two points on the pH scale that bracket the expected pH and are approximately three standard units apart. The pH meter must read to 0.01 standard units and be equipped with temperature compensation adjustment. Readings shall be reported to the nearest 0.1 standard units.
- <sup>10</sup> The water temperature of the effluent shall be taken as a field measurement. Measurement shall be made with a mercury-filled, or dial-type thermometer, or a thermistor. Readings shall be reported to the nearest whole degree Celsius.
- <sup>11</sup> For Ammonia-Nitrogen (as N), if a minimum of five samples are collected in a calendar month, all of the samples collected are to be used in determining the 30-Day Average. If less than five samples are taken during any calendar month, the 30-Day Average shall be reported as "NODI 9" for "Not Required".

### 3.8 Self-Monitoring Requirements – *Emergency Discharges and Sanitary Sewer Overflows*

All emergency discharges and sanitary sewer overflows shall be monitored for the following parameters at the frequency and with the type of measurement indicated. Promptly upon discovery of an emergency discharge or sanitary sewer overflow, the discharge shall be monitored as shown below. Sampling shall occur at the point of discharge, unless alternative sampling locations are approved by the Secretary. Knowingly discharging or failing to report a discharge within a reasonable time from the permittee first learning of a discharge could subject the permittee to penalties as provided under the South Dakota Water Pollution Control Act. The permittee shall report the monitoring results in accordance with **Section 4.1 – Reporting of Monitoring Results.**

<b>Effluent Parameter</b>	<b>Frequency</b>	<b>Reporting Values <sup>1</sup></b>	<b>Sample Type <sup>1</sup></b>
Duration of Discharge, days	Monthly	Monthly Total <sup>2</sup>	Calculate
Total Flow, million gallons	Monthly	Monthly Total	Calculate
Flow Rate, MGD	Daily	Actual Value	Instantaneous
pH, standard units	Daily	Actual Value	Instantaneous <sup>3, 4</sup>
Water Temperature, °C	Daily	Actual Value	Instantaneous <sup>4, 5</sup>
Five-Day Biochemical Oxygen Demand (BOD <sub>5</sub> ), mg/L	Daily	Actual Value	Grab
Total Suspended Solids (TSS), mg/L	Daily	Actual Value	Grab
Ammonia-Nitrogen (as N), mg/L	Daily	Actual Value	Grab <sup>4</sup>
<i>Escherichia coli</i> ( <i>E. coli</i> ), no./100 mL	Daily	Actual Value	Grab
Total Coliform, no./100 mL	Daily	Actual Value	Grab
Total Residual Chlorine, mg/L	Daily	Actual Value	Grab

<sup>1</sup> See **Section 1.0 – Definitions.**

<sup>2</sup> The date and time of the start and termination of each discharge shall also be reported.

<sup>3</sup> The pH shall be taken within 15 minutes of sample collection with a pH meter. The pH meter must be capable of simultaneous calibration to two points on the pH scale that bracket the expected pH and are approximately three standard units apart. The pH meter must read to 0.01 standard units and be equipped with temperature compensation adjustment. Readings shall be reported to the nearest 0.1 standard units.

<sup>4</sup> The pH and temperature of the effluent shall be determined when ammonia samples are collected.

<sup>5</sup> The water temperature of the effluent shall be taken as a field measurement. Measurement shall be made with a mercury-filled, or dial type thermometer, or a thermistor. Readings shall be reported to the nearest whole degree Celsius.

### **3.9 Monitoring Procedures**

1. Effluent samples taken in compliance with the monitoring requirements established under this permit shall be collected prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge.
2. Monitoring shall be conducted according to test procedures approved under ARSD Section 74:52:03:06 (a.b.r. 40 CFR, Part 136), unless other test procedures have been specified in this permit or approved by the Secretary. Analysis methods shall be sufficiently sensitive to ensure the minimum detection level for a pollutant is below the permit limit. If no sufficiently sensitive method is available, the method with the lowest minimum detection level shall be used.

### **3.10 Additional Monitoring by the Permittee**

If the permittee monitors any pollutant more frequently than required by this permit at the designated points, using test procedures approved under ARSD Section 74:52:03:06 (a.b.r. 40 CFR 136) or as specified in this permit, the results of this monitoring shall be used in determining compliance with this permit and reported to SDDANR.

### **3.11 Capacity, Management, Operation, and Maintenance Program**

In the event that the Secretary notifies the permittee of the need to develop a capacity, management, operation, and maintenance program in order to address, reduce, or eliminate the frequency of sanitary sewer overflows or emergency discharges, the permittee shall develop and submit the program to the Secretary. The program shall, at a minimum, address the following areas:

1. Sewer management program: This program includes personnel organizational structure, training, communication information systems, noncompliance notification program, and other appropriate items;
2. Collection system operation program: This program includes operational budgeting, monitoring, safety, emergency preparedness and response, pump stations, operational recordkeeping, and other appropriate items;
3. Collection system maintenance program: This program includes maintenance budgeting, planned and unplanned maintenance; sewer cleaning; maintenance recordkeeping, parts and equipment inventory, and other appropriate items; and
4. Sewer system capacity evaluation: The capacity evaluation includes the following:
  - a. System inventory (sewer locations, sizes, slopes, materials, age, condition, etc.);
  - b. Identification of problem areas (overflows, surcharged lines, basement backups, etc.);

- c. Capacity evaluation of problem areas (utilizing flow and precipitation records, infiltration and inflow investigation, manhole and pipe inspections and televising, smoke and dye testing, and building inspections); and
  - d. Sewer rehabilitation recommendations.
- 5. Timelines: This program shall identify timelines and specific dates for completing any identified changes or improvements.
  - 6. SDDANR Approval: The permittee shall submit the program to SDDANR for approval. Upon approval, the permittee shall implement the program.

## 4.0 REPORTING & RECORD KEEPING REQUIREMENTS

### 4.1 Reporting of Monitoring Results

- 1. Effluent monitoring results obtained during the previous month shall be summarized for each month, reported on separate Discharge Monitoring Report Forms (as defined in **Section 1.0 - Definitions**) designated as Outfall 002 and submitted to SDDANR via NetDMR on a **monthly** basis.
- 2. Effluent results obtained from all other sources shall be reported on Emergency Discharge and SSO Reporting Forms in Appendix A.
- 3. All reports must be submitted **no later than the 28<sup>th</sup> day of the month** following the completed reporting period. If no discharge occurs during the reporting period, "no discharge" shall be reported on the Discharge Monitoring Report.
- 4. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with **Section 4.5 – Signatory Requirements** and submitted to the Secretary at the following address:

South Dakota Department of Agriculture and Natural Resources  
Surface Water Quality Program  
Joe Foss Building  
523 East Capitol  
Pierre, SD 57501-3182

In accordance with 40 CFR, Part 122, all permit reports shall be submitted electronically starting no later than **December 21, 2025**.

- 5. In accordance with SDCL 1-40-39, the Secretary is authorized to accept a document with an electronic signature. SDDANR shall provide for the authenticity of each electronic signature by adhering to any standards established by the South Dakota Bureau of Information and Telecommunications pursuant to



SDCL 53-12-47 and 53-12-50 or any other standards established by rules promulgated pursuant to SDCL Chapter 1-26.

#### **4.2 Effluent Violation, Bypass, Emergency Discharge, and SSO Reporting Requirements**

1. Any possible or actual endangerment to health or the environment attributed to an effluent violation, bypass, emergency discharge, or sanitary sewer overflow shall be reported as soon as possible, but no later than 24 hours after becoming aware of the circumstances as follows:
  - a. During regular business hours (8:00 a.m. - 5:00 p.m. Central Time), the report shall be made at (605) 773-3351.
  - b. Outside of normal business hours, the permittee shall contact the South Dakota Emergency Management at (605) 773-3231.
2. Effluent violations, bypass, sanitary sewer overflows, and emergency discharges that do not meet the conditions above shall be reported to the Secretary within 24 hours from the time the permittee becomes aware of the circumstances either by telephone or email as follows:
  - a. Via telephone at (605) 773-3351. Outside of normal business hours (8:00 a.m. - 5:00 p.m. Central Time), the permittee shall leave a message.
  - b. Via email at [SWDPermits@state.sd.us](mailto:SWDPermits@state.sd.us).
3. The permittee shall submit notice of bypass as follows:
  - a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Secretary at least 10 days before the date of the bypass.
  - b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass to the secretary at (605) 773-3351 or via email at [SWDPermits@state.sd.us](mailto:SWDPermits@state.sd.us) by the first workday (8:00 a.m. - 5:00 p.m. Central Time) following the day the permittee became aware of the circumstances.
4. The Secretary may require the permittee to notify the general public or downstream users that could be or will be impacted by the effluent violation, bypass, emergency discharge, or SSO.
  - a. In making the decision to require public notification, the Secretary will consider the potential impacts as a result of the effluent violation, bypass, emergency discharge, or SSO, the downstream beneficial uses (such as drinking water or recreation), and the potential for public contact.

- b. If required by the Secretary, the permittee shall notify the public and/or downstream users as soon as possible, but in no case more than 24 hours after the effluent violation, bypass, emergency discharge, or SSO begins.
5. In addition to verbal notification, the permittee shall submit a written report of the circumstances regarding the effluent violation, bypass, sanitary sewer overflow, or emergency discharge to the Secretary. The permittee shall use the Emergency Discharge and SSO Reporting Form in Appendix A to report an emergency discharge or SSO. Effluent violations shall be reported on the Discharge Monitoring Report forms required in **Section 4.1 – Reporting of Monitoring Results**.
- a. Reports shall be submitted in accordance with **Section 4.1 – Reporting of Monitoring Results**.
  - b. The written submission shall contain:
    - i. A description of the event and its cause;
    - ii. The period of the event, including exact dates and times;
    - iii. Where the wastewater was discharged;
    - iv. The estimated time the event is expected to continue if it has not been corrected;
    - v. Any adverse effects, such as fish kills;
    - vi. If public notification was required, describe how the public was notified of the discharge; and
    - vii. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the event.
6. The written report shall be submitted by the 28<sup>th</sup> day of the following month. The Secretary may require a written report to be submitted sooner or may require additional information if the discharge has the potential to impact human health or the environment.

#### **4.3 Other Noncompliance Reporting Requirements**

- 1. The permittee shall submit a written report of all instances of permit noncompliance not reported under **Section 4.2 – Effluent Violation, Bypass, Emergency Discharge, and SSO Reporting Requirements**.
  - a. Reports shall be submitted in accordance with **Section 4.1 – Reporting of Monitoring Results**.
  - b. The written submission shall contain:
    - i. A description of the event and its cause;
    - ii. The period of the event, including exact dates and times;
    - iii. Where the wastewater was discharged;
    - iv. The estimated time the event is expected to continue if it has not been corrected;
    - v. Any adverse effects, such as fish kills;

- vi. If public notification was required, describe how the public was notified of the discharge; and
  - vii. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the event.
2. The written report shall be submitted by the 28th day of the following month. The Secretary may require a written report to be submitted sooner or may require additional information if the discharge has the potential to impact human health or the environment.

#### **4.4 Records Contents**

Records of monitoring information shall include:

- 1. The date, exact place, and time of sampling or measurements;
- 2. The initials or names of the individuals who performed the sampling or measurements;
- 3. The dates analyses were performed;
- 4. The time analyses were initiated;
- 5. The initials or names of individuals who performed the analyses;
- 6. References and written procedures, when available, for the analytical techniques or methods used; and,
- 7. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.

#### **4.5 Signatory Requirements**

- 1. All permit applications, reports or information submitted to the Secretary shall be signed and certified by either a principal executive officer or ranking elected official.
- 2. All reports required by the permit and other information requested by the Secretary shall be signed by a person described in Paragraph 1 of this section or by a duly authorized representative of that person. A person is a duly authorized representative only if:
  - a. The authorization is made in writing by a person described above and submitted to the Secretary; and,
  - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of superintendent or equivalent responsibility, or an individual or position having overall responsibility for environmental matters. A duly

authorized representative may be either a named individual or any individual occupying a named position.

3. If an authorization under Paragraph 2 a. above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization must be submitted to the Secretary.
4. Any person signing a document under this section shall include the following certification:

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

#### **4.6 Retention of Records**

1. The permittee shall retain records of all monitoring information and other data required by this permit. This includes:
  - a. Data collected on site;
  - b. Copies of all Discharge Monitoring Report Forms;
  - c. A copy of the permit;
  - d. All calibration and maintenance records;
  - e. All original strip chart recordings for continuous monitoring instrumentation;
  - f. Copies of all other reports required by this permit; and
  - g. Records of all data used to complete the application for this permit.
2. This information must be retained for a period of at least **three years** (five years for sewage sludge activities) from the date of the sample, measurement, report, or application. This period may be extended by request of the Secretary at any time. Data collected on site, copies of Discharge Monitoring Reports, and a copy of this permit must be maintained on site during the duration of the permitted activity.

#### **4.7 Availability of Reports**

Except for data determined to be confidential under ARSD Section 74:52:02:17, all reports prepared in accordance with the terms of this permit shall be available for public

inspection at the office of SDDANR. The name and address of the permittee, permit applications, permits, and effluent data shall not be considered confidential.

#### **4.8 Duty to Provide Information**

1. The permittee shall furnish to the Secretary, within a reasonable time, any information the Secretary may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Secretary, upon request, copies of records required to be kept by this permit.
2. If the permittee becomes aware that it failed to submit any relevant facts in a permit application form, or submitted incorrect information in a permit application form or any report to the Secretary, it shall promptly submit such facts or information.

#### **4.9 Planned Changes**

The permittee shall give notice to the Secretary as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of pollutant discharged, or could result in noncompliance with permit conditions. This notification also applies to pollutants that are not subject to effluent limits or other notification requirements in this permit.

### **5.0 COMPLIANCE REQUIREMENTS**

#### **5.1 Duty to Comply**

The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the South Dakota Water Pollution Control Act and the federal Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application (a violation of a condition of this permit is subject to SDCL Section 34A-2-75).

#### **5.2 Duty to Mitigate**

The permittee shall take all reasonable steps to minimize or prevent any wastewater discharge and/or sludge disposal or reuse in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

#### **5.3 Need to Halt or Reduce Activity Not a Defense**

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

#### **5.4 Upset Conditions**

1. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limits if the requirements of Paragraph 2 of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review (i.e., Permittees will have the opportunity for a judicial determination on any claim of upset only in an enforcement action brought for noncompliance with technology-based permit effluent limits).
2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
  - a. An upset occurred and the permittee can identify the cause(s) of the upset;
  - b. The permitted facility was at the time being properly operated;
  - c. The permittee submitted notice of the upset as required under **Section 4.2 – Effluent Violation, Bypass, Emergency Discharge, and SSO Reporting Requirements**; and,
  - d. The permittee complied with mitigation measures required under **Section 5.2 – Duty to Mitigate**.
3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

#### **5.5 Penalties for Violations of Permit Conditions**

Any person who violates a permit condition is in violation of the provisions of SDCL 34A-2-36, and is subject to penalties under SDCL 34A-2-75. In addition to a jail sentence authorized by SDCL 22-6-2, such violators are subject to a criminal fine not to exceed ten thousand dollars per day of violation. The violator is also subject to a civil penalty not to exceed ten thousand dollars per day of violation, or for damages to the environment of this state. Except as provided in **Section 5.4 – Upset Conditions**, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.

#### **5.6 Penalties for Falsification of Reports**

1. Any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, is in violation of the provisions of SDCL 34A-2-77, and is subject to penalties under SDCL 34A-2-75.
2. Any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit is in

violation of the provisions of SDCL 34A-2-77, and is subject to penalties under SDCL 34A-2-75.

3. In addition to a jail sentence authorized by SDCL 22-6-2, such violators are subject to a criminal fine not to exceed ten thousand dollars per day of violation. The violator is also subject to a civil penalty not to exceed ten thousand dollars per day of violation, or for damages to the environment of this state.

#### **5.7 Oil and Hazardous Substance Liability**

Nothing in this permit shall be construed to preclude SDDANR from taking any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to that the permittee is or may be subject under Section 311 of the Federal Clean Water Act.

### **6.0 INDUSTRIAL WASTES**

#### **6.1 Industrial Users**

1. The Permittee has the responsibility to protect the Publicly-Owned Treatment Works (POTW) from pollutants which would inhibit, interfere, or otherwise be incompatible with operation of the treatment works including interference with the use or disposal of municipal sludge.
2. During the life of the permit, the permittee shall conduct an industrial waste survey to identify the character and volume of pollutants from each significant industrial user, as well as documenting production data. The permittee shall notify the Secretary of any new introductions by new or existing industrial users or any substantial change in pollutants from any industrial user. Such notice must contain the information described in Paragraph 3 below and be submitted to the Secretary no later than 60 days following the introduction or change.
3. The permittee shall provide adequate notice to the Secretary of any substantial change in the volume or character of pollutants being introduced into the POTW by any other industrial users. For the purposes of this section, adequate notice shall include information on:
  - a. The quality and quantity of effluent to be introduced into the POTW; and,
  - b. Any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

#### **6.2 Prohibited Discharges**

Under no circumstances shall the permittee allow the introduction of the following pollutants to the POTW from any source of nondomestic discharge:

1. Pollutants that create a fire or explosion hazard in the publicly owned treatment works, including but not limited to waste streams with a closed cup flashpoint of

less than 60 degrees Celsius (140 degrees Fahrenheit) using the test methods specified in ARSD Section 74:28:22:01 (a.b.r. 40 CFR 261.21);

2. Pollutants that will cause corrosive structural damage to the Publicly owned treatment works (POTW), but in no case discharges with pH lower than 5.0 standard units nor greater than 12.5 standard units;
3. Solid or viscous pollutants in amounts that will cause obstruction to the flow in the POTW, or other interference with the operation of the POTW;
4. Any pollutant, including oxygen demanding pollutants (e.g., BOD), released in a discharge at a flow rate and/or pollutant concentration that will cause interference with the POTW;
5. Heat in amounts that will inhibit biological activity in the POTW resulting in interference but in no case heat in such quantities that the temperature at the POTW treatment plant exceeds 40 degrees Celsius (104 degrees Fahrenheit);
6. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
7. Pollutants that result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems;
8. Any trucked or hauled pollutants, except at discharge points designated by the POTW; and
9. Any pollutant that causes pass through or interference.

### **6.3 Categorical Standards**

In addition to the general limits expressed above, more specific pretreatment limits have been promulgated for specific industrial categories under Section 307 of the Act (see ARSD, Chapter 74:52:10, a.b.r. 40 CFR Subchapter N, Parts 405 through 471, for specific information).

### **6.4 Legal Action**

The Secretary retains the right to take legal action against the industrial user and/or the permittee, in those cases where a permit violation has occurred because of the failure of an industrial user to discharge at an acceptable level.

## **7.0 ADDITIONAL PERMIT CONDITIONS**

### **7.1 Inspection and Entry**

The permittee shall allow the Secretary or EPA, upon the presentation of credentials and other documents as may be required by law, to:



1. Enter the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and,
4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the South Dakota Water Pollution Control Act, any substances or parameters at any location.

## **7.2 Removed Substances**

1. Collected screenings, grit, solids, sludges, or other pollutants removed in the course of treatment shall be disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard in accordance with applicable requirements of SDCL 34A-2, -6, and -11.
2. If sludge disposal is necessary, the permittee shall submit to the Secretary a sludge disposal plan for review and approval prior to the removal and disposal of sludge. The permittee shall not dispose of sludge without the Secretary's approval. The permittee shall submit sludge monitoring results on forms specified by the Secretary.

## **APPENDIX A**

### **Emergency Discharge and SSO Reporting Form**

**EMERGENCY DISCHARGE and SSO REPORTING FORM**

*This form is to be used to summarize the reporting requirements for any emergency discharge or sanitary sewer overflow.*

<b>Address:</b>	<b>Point of Discharge</b>	<input type="checkbox"/> 002	<input type="checkbox"/> SSO
			<input type="checkbox"/> Other
<b>Facility Contact:</b>	<b>Phone:</b>		
<b>Description of Event</b> <i>(Attach additional sheets if necessary)</i>			
<p><i>Please check the boxes below, as appropriate, to indicate the type of release being reported (See Definitions for an explanation of each term).</i></p> <p><input type="checkbox"/> Emergency Discharge      <input type="checkbox"/> Sanitary Sewer Overflow</p>			
<b>Date and Time the discharge began or was discovered:</b>			
<b>Date and Time the discharge was stopped:</b>			
<b>Describe the events resulting in the discharge and its cause(s):</b>			
<b>Where did the event occur and where was the wastewater released to:</b>			
<b>Describe the steps taken or planned to reduce, eliminate, and prevent reoccurrence:</b>			
<b>Time and Date 24-Hour Notice of Noncompliance given to SDDANR:</b>			
<b>Describe any adverse effects, such as fish kills, etc.:</b>			
<b>Duration of discharge (include dates and times):</b>			
<b>Total flow, million gallons:</b>			

*City of Elk Point*

*SD0022080*

**ANALYTICAL RESULTS**

<b>Parameter</b>	<b>Sample 1</b>	<b>Sample 2</b>	<b>Sample 3</b>	<b>Sample 4</b>	<b>Sample 5</b>	<b>Sample 6</b>	<b>Sample 7</b>
Date and time of sample							
Flow Rate, MGD							
pH, standard units							
Water Temperature, °C							
Five-Day Biochemical Oxygen Demand (BOD <sub>5</sub> ), mg/L							
Total Suspended Solids (TSS), mg/L							
Ammonia-Nitrogen (as N), mg/L							
<i>Escherichia coli</i> ( <i>E. coli</i> ), no./100 mL							
Total Coliform, no./100 mL							
Total Residual Chlorine, mg/L							

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

Name (print): \_\_\_\_\_

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## Appendix B: Pump Runtime Data

# Dunham Lift Station

Date	Pump 1 Reading (hrs)	Pump 2 Reading (hrs)	Run Time Pump 1 (hrs)	Run Time Pump 2 (hrs)	Run Time Combined (hrs)
1/4/2018	7551.7	5524.51			
1/10/2019	7553.01	5531.73	1.31	7.22	8.53
1/18/2019	7558.14	5537.25	5.13	5.52	10.65
1/20/2019	7562.44	5541.1	4.3	3.85	8.15
1/27/2019	7569.12	5547.81	6.68	6.71	13.39
2/6/2019	7572.54	5551.45	3.42	3.64	7.06
2/14/2019	7578.1	5556.86	5.56	5.41	10.97
3/1/2019	7588.72	5567.74	10.62	10.88	21.5
3/8/2019	7593.93	5572.49	5.21	4.75	9.96
3/15/2019	7599.89	5578.34	5.96	5.85	11.81
3/21/2019	7604.29	5582.63	4.4	4.29	8.69
3/29/2019	7610.35	5589.52	6.06	6.89	12.95
4/5/2019	7620.82	5592.28	10.47	2.76	13.23
4/12/2019	7631.73	5592.28	10.91	0	10.91
4/18/2019	7636.17	5596.6	4.44	4.32	8.76
4/25/2019	7641.7	5602.01	5.53	5.41	10.94
5/2/2019	7646.18	5607.37	4.48	5.36	9.84
5/9/2019	7652.49	5612.4	6.31	5.03	11.34
5/23/2019	7663.57	5622.98	11.08	10.58	21.66
5/30/2019	7669.61	5628.74	6.04	5.76	11.8
6/6/2019	7674.7	5633.9	5.09	5.16	10.25
6/9/2019	7681.43	5639.73	6.73	5.83	12.56
6/20/2019	7686.8	5645.47	5.37	5.74	11.11
6/27/2019	7692.03	5650.81	5.23	5.34	10.57
7/7/2019	7696.75	5655.62	4.72	4.81	9.53
7/11/2019	7702.89	5662.09	6.14	6.47	12.61
7/18/2019	7708.64	5667.61	5.75	5.52	11.27
7/25/2019	7714.09	5673.01	5.45	5.4	10.85
8/1/2019	7719.21	5678.3	5.12	5.29	10.41
8/7/2019	7724.45	5683.65	5.24	5.35	10.59
8/15/2019	7730.6	5688.22	6.15	4.57	10.72
8/22/2019	7737.33	5696.42	6.73	8.2	14.93
8/29/2019	7743.05	5702.24	5.72	5.82	11.54
9/5/2019	7748.72	5707.82	5.67	5.58	11.25
9/12/2019	7754.37	5713.5	5.65	5.68	11.33
9/29/2019	7765.17	5725.08	10.8	11.58	22.38
10/2/2019	7771.71	5731.05	6.54	5.97	12.51
10/13/2019	7774.8	5736.25	3.09	5.2	8.29
10/18/2019	7784.34	5743.94	9.54	7.69	17.23
10/25/2019	7790.84	5749.69	6.5	5.75	12.25

Date	Pump 1 Reading (hrs)	Pump 2 Reading (hrs)	Run Time Pump 1 (hrs)	Run Time Pump 2 (hrs)	Run Time Combined (hrs)
11/1/2019	7795.83	5755.37	4.99	5.68	10.67
11/8/2019	7801.41	5761.13	5.58	5.76	11.34
11/15/2019	7807.39	5767.11	5.98	5.98	11.96
11/22/2019	7812.95	5772.76	5.56	5.65	11.21
12/8/2019	7824.97	5784.67	12.02	11.91	23.93
12/13/2019	7831.39	5790.82	6.42	6.15	12.57
12/20/2019	7837.11	5796.76	5.72	5.94	11.66
12/26/2019	7842.61	5802.14	5.5	5.38	10.88
1/3/2020	7849.42	5809.03	6.81	6.89	13.7
1/10/2020	7855.18	5815.02	5.76	5.99	11.75
1/24/2020	7867.57	5827.32	12.39	12.3	24.69
1/30/2020	7872.63	5832.44	5.06	5.12	10.18
2/16/2020	7879.32	5839.26	6.69	6.82	13.51
2/21/2020	7891.62	5851.69	12.3	12.43	24.73
3/8/2020	7902	5863.18	10.38	11.49	21.87
3/20/2020	7914.85	5875.08	12.85	11.9	24.75
3/26/2020	7920.22	5880.43	5.37	5.35	10.72
4/7/2020	7930.5	5890.57	10.28	10.14	20.42
4/16/2020	7938.26	5898.25	7.76	7.68	15.44
4/23/2020	7943.71	5903.69	5.45	5.44	10.89
4/29/2020	7949.25	5908.12	5.54	4.43	9.97
5/7/2020	7955.77	5915.61	6.52	7.49	14.01
5/14/2020	7961.7	5921.55	5.93	5.94	11.87
5/21/2020	7968.09	5928.09	6.39	6.54	12.93
5/28/2020	7974.45	5934.76	6.36	6.67	13.03
6/14/2020	7987.02	5947.52	12.57	12.76	25.33
6/17/2020	7991.86	5952.4	4.84	4.88	9.72
6/28/2020	7998.52	5959.23	6.66	6.83	13.49
7/5/2020	8003.76	5964.45	5.24	5.22	10.46
7/8/2020	8009.71	5970.56	5.95	6.11	12.06
7/15/2020	8015.96	5976.87	6.25	6.31	12.56
7/29/2020	8028.29	5989.38	12.33	12.51	24.84
8/6/2020	8033.92	5995.06	5.63	5.68	11.31
8/12/2020	8038.73	5999.91	4.81	4.85	9.66
8/18/2020	8044.27	6005.44	5.54	5.53	11.07
8/27/2020	8051.57	6012.86	7.3	7.42	14.72
9/2/2020	8056.34	6017.61	4.77	4.75	9.52
9/10/2020	8062.3	6023.67	5.96	6.06	12.02
9/18/2020	8068.82	6030.09	6.52	6.42	12.94
10/1/2020	8079.35	6040.56	10.53	10.47	21
10/8/2020	8084.77	6045.99	5.42	5.43	10.85

Date	Pump 1 Reading (hrs)	Pump 2 Reading (hrs)	Run Time Pump 1 (hrs)	Run Time Pump 2 (hrs)	Run Time Combined (hrs)
10/23/2020	8097.01	6058.22	12.24	12.23	24.47
11/5/2020	8107.79	6068.94	10.78	10.72	21.5
11/25/2020	8125.02	6086.11	17.23	17.17	34.4
12/4/2020	8132.81	6093.86	7.79	7.75	15.54
12/10/2020	8138.16	6099.16	5.35	5.3	10.65
12/18/2020	8145.05	6106.02	6.89	6.86	13.75
12/22/2020	8149.03	6110.09	3.98	4.07	8.05
1/14/2021	8171.23	6132.27	22.2	22.18	44.38
1/21/2021	8177.77	6138.98	6.54	6.71	13.25
2/12/2021	8197.21	6158.63	19.44	19.65	39.09
2/18/2021	8204.14	6165.62	6.93	6.99	13.92
2/28/2021	8217.83	6180.91	13.69	15.29	28.98
3/21/2021	8254.01	6185.61	36.18	4.7	40.88
4/8/2021	8278.96	6185.61	24.95	0	24.95
4/15/2021	8292.64	6185.61	13.68	0	13.68
5/2/2021	8329.7	6185.62	37.06	0.01	37.07
5/13/2021	8342.28	6185.62	12.58	0	12.58
6/3/2021	8375.58	6185.62	33.3	0	33.3
6/10/2021	8386.66	6187.77	11.08	2.15	13.23
6/27/2021	8409.71	6197.04	23.05	9.27	32.32
8/5/2021	8455.66	6207.22	45.95	10.18	56.13
8/19/2021	8455.66	6228.75	0	21.53	21.53
9/2/2021	8455.66	6267.22	0	38.47	38.47
9/22/2022	8455.74	6278.52	0.08	11.3	11.38
10/21/2021	8484.32	6301.46	28.58	22.94	51.52
10/29/2021	8494.63	6301.46	10.31	0	10.31
11/5/2021	8503.23	6301.46	8.6	0	8.6
11/11/2021	8509.57	6301.46	6.34	0	6.34
11/19/2021	8520.72	6301.46	11.15	0	11.15
11/24/2021	8527.57	6301.46	6.85	0	6.85
12/3/2021	8538.82	6301.46	11.25	0	11.25
12/10/2021	8548.1	6301.46	9.28	0	9.28
12/17/2021	8557.94	6301.47	9.84	0.01	9.85
12/23/2021	8557.94	6308.45	0	6.98	6.98
12/30/2021	8557.94	6318.23	0	9.78	9.78



# Kum and Go Lift Station

Date	Pump 1 Reading (hrs)	Pump 2 Reading (hrs)	Run Time Pump 1 (hrs)	Run Time Pump 2 (hrs)	Run Time Combined (hrs)
1/4/2018	396.2	357.46			
1/10/2019	396.68	357.46	0.48	0	0.48
1/18/2019	397.23	357.46	0.55	0	0.55
1/20/2019	397.79	357.46	0.56	0	0.56
1/27/2019	398.43	357.51	0.64	0.05	0.69
2/6/2019	399	357.51	0.57	0	0.57
2/14/2019	399.98	357.51	0.98	0	0.98
3/1/2019	401.23	357.51	1.25	0	1.25
3/8/2019	402.52	357.51	1.29	0	1.29
3/21/2019	403.23	357.51	0.71	0	0.71
3/29/2019	404.83	357.81	1.6	0.3	1.9
4/5/2019	404.81	357.51	-0.02	-0.3	-0.32
4/12/2019	405.48	357.51	0.67	0	0.67
4/18/2019	406.05	357.74	0.57	0.23	0.8
4/25/2019	406.45	358.22	0.4	0.48	0.88
5/2/2019	406.89	358.53	0.44	0.31	0.75
5/9/2019	407.35	359.43	0.46	0.9	1.36
5/23/2019	408.47	359.98	1.12	0.55	1.67
5/30/2019	409.3	360.81	0.83	0.83	1.66
6/6/2019	410.31	361.73	1.01	0.92	1.93
6/9/2019	411.28	362.74	0.97	1.01	1.98
6/20/2019	412.18	363.54	0.9	0.8	1.7
6/27/2019	413.28	364.43	1.1	0.89	1.99
7/7/2019	414.03	365.45	0.75	1.02	1.77
7/11/2019	415.33	366.73	1.3	1.28	2.58
7/18/2019	416.55	367.8	1.22	1.07	2.29
7/25/2019	417.28	368.92	0.73	1.12	1.85
8/1/2019	418.43	369.69	1.15	0.77	1.92
8/7/2019	419.15	370.37	0.72	0.68	1.4
8/15/2019	420.36	371.27	1.21	0.9	2.11
8/22/2019	421.15	372.35	0.79	1.08	1.87
8/29/2019	421.68	372.91	0.53	0.56	1.09
9/5/2019	422.35	373.45	0.67	0.54	1.21
9/12/2019	422.98	373.88	0.63	0.43	1.06
9/29/2019	424.13	374.91	1.15	1.03	2.18
10/2/2019	424.71	375.52	0.58	0.61	1.19
10/18/2019	425.74	376.63	1.03	1.11	2.14
10/25/2019	425.79	376.73	0.05	0.1	0.15
11/1/2019	425.74	376.63	-0.05	-0.1	-0.15
11/8/2019	426.41	377.45	0.67	0.82	1.49

Date	Pump 1 Reading (hrs)	Pump 2 Reading (hrs)	Run Time Pump 1 (hrs)	Run Time Pump 2 (hrs)	Run Time Combined (hrs)
11/15/2019	426.86	377.87	0.45	0.42	0.87
11/22/2019	427.27	378.29	0.41	0.42	0.83
12/8/2019	428.67	379.78	1.4	1.49	2.89
12/13/2019	429.96	380.52	1.29	0.74	2.03
12/20/2019	430.83	381.42	0.87	0.9	1.77
12/26/2019	431.58	382.18	0.75	0.76	1.51
1/3/2020	432.31	382.85	0.73	0.67	1.4
1/10/2020	432.77	383.32	0.46	0.47	0.93
1/24/2020	433.99	384.43	1.22	1.11	2.33
1/30/2020	434.57	384.94	0.58	0.51	1.09
2/8/2020	435.27	385.62	0.7	0.68	1.38
2/21/2020	436.77	387.13	1.5	1.51	3.01
3/8/2020	438.51	388.61	1.74	1.48	3.22
3/20/2020	439.89	389.93	1.38	1.32	2.7
3/26/2020	440.31	390.33	0.42	0.4	0.82
4/7/2020	440.9	390.92	0.59	0.59	1.18
4/16/2020	441.31	391.36	0.41	0.44	0.85
4/23/2020	441.71	391.76	0.4	0.4	0.8
4/29/2020	442.24	392.26	0.53	0.5	1.03
5/7/2020	442.6	392.9	0.36	0.64	1
5/14/2020	443.54	393.5	0.94	0.6	1.54
5/21/2020	444.22	394.07	0.68	0.57	1.25
5/28/2020	444.73	394.69	0.51	0.62	1.13
6/14/2020	445.73	395.53	1	0.84	1.84
6/17/2020	446.14	395.91	0.41	0.38	0.79
6/28/2020	446.9	396.57	0.76	0.66	1.42
7/5/2020	447.41	396.95	0.51	0.38	0.89
7/8/2020	448.11	397.53	0.7	0.58	1.28
7/15/2020	448.8	398.09	0.69	0.56	1.25
7/30/2020	450.34	395.51	1.54	-2.58	-1.04
8/6/2020	451.1	400.16	0.76	4.65	5.41
8/12/2020	451.58	400.59	0.48	0.43	0.91
8/18/2020	452.15	401.07	0.57	0.48	1.05
8/27/2020	452.73	401.62	0.58	0.55	1.13
9/2/2020	453.3	402.06	0.57	0.44	1.01
9/10/2020	453.84	402.5	0.54	0.44	0.98
9/18/2020	454.36	402.94	0.52	0.44	0.96
10/1/2020	455.58	403.91	1.22	0.97	2.19
10/8/2020	456.16	404.33	0.58	0.42	1
10/23/2020	457.35	405.19	1.19	0.86	2.05
11/5/2020	458.43	405.97	1.08	0.78	1.86

Date	Pump 1 Reading (hrs)	Pump 2 Reading (hrs)	Run Time Pump 1 (hrs)	Run Time Pump 2 (hrs)	Run Time Combined (hrs)
11/25/2020	460.19	407.29	1.76	1.32	3.08
12/4/2020	461.18	407.97	0.99	0.68	1.67
12/10/2020	461.84	408.37	0.66	0.4	1.06
12/18/2020	462.72	408.68	0.88	0.31	1.19
12/22/2020	463.09	409.12	0.37	0.44	0.81
1/14/2021	465.46	410.61	2.37	1.49	3.86
1/21/2021	466.06	411.06	0.6	0.45	1.05
2/12/2021	468.37	413.44	2.31	2.38	4.69
2/18/2021	469.62	413.1	1.25	-0.34	0.91
2/28/2021	471.82	414.4	2.2	1.3	3.5
3/21/2021	476.18	416.41	4.36	2.01	6.37
4/8/2021	479.29	417.76	3.11	1.35	4.46
4/15/2021	480.78	418.35	1.49	0.59	2.08
5/2/2021	485.34	420.4	4.56	2.05	6.61
5/13/2021	486.95	421.17	1.61	0.77	2.38
6/3/2021	491.43	423.48	4.48	2.31	6.79
6/10/2021	493.37	424.35	1.94	0.87	2.81
6/27/2021	498.52	427.2	5.15	2.85	8
7/8/2021	500.28	428.15	1.76	0.95	2.71
8/5/2021	506.84	432.1	6.56	3.95	10.51
8/19/2021	508.94	433.79	2.1	1.69	3.79
9/2/2021	510.8	434.9	1.86	1.11	2.97
9/22/2022	512.49	436.57	1.69	1.67	3.36
10/21/2021	514.78	438.81	2.29	2.24	4.53
10/29/2021	515.26	439.39	0.48	0.58	1.06
11/5/2021	515.72	439.88	0.46	0.49	0.95
11/11/2021	516.07	440.22	0.35	0.34	0.69
11/19/2021	516.81	440.99	0.74	0.77	1.51
11/24/2021	517.38	441.54	0.57	0.55	1.12
12/3/2021	517.99	442.25	0.61	0.71	1.32
12/10/2021	518.47	442.74	0.48	0.49	0.97
12/17/2021	519.82	443.29	1.35	0.55	1.9
12/23/2021	519.99	443.6	0.17	0.31	0.48
12/30/2021	519.99	444.17	0	0.57	0.57

# Green Street

Date	Pump 1 Reading (hrs)	Pump 2 Reading (hrs)	Run Time Pump 1 (hrs)	Run Time Pump 2 (hrs)	Run Time Combined (hrs)
1/4/2019	5723.9	1609.93			
1/10/2019	5726.7	1612.77	2.8	2.84	5.64
1/18/2019	5730.1	1615.9	3.4	3.13	6.53
1/20/2019	5732.1	1618.23	2	2.33	4.33
1/27/2019	5735.8	1622.12	3.7	3.89	7.59
2/6/2019	5737.8	1624.15	2	2.03	4.03
2/14/2019	5741	1624.32	3.2	0.17	3.37
3/1/2019	5747.1	1633.45	6.1	9.13	15.23
3/8/2019	5750	1636.36	2.9	2.91	5.81
3/15/2019	5771.3	1657.6	21.3	21.24	42.54
3/21/2019	5773.5	1659.95	2.2	2.35	4.55
3/29/2019	5775.9	1662.47	2.4	2.52	4.92
4/12/2019	5780.3	1667.57	4.4	5.1	9.5
4/18/2019	5782.5	1669.84	2.2	2.27	4.47
4/25/2019	5785.1	1672.47	2.6	2.63	5.23
5/2/2019	5787.3	1674.73	2.2	2.26	4.46
5/9/2019	5790.2	1677.38	2.9	2.65	5.55
5/23/2019	5795.1	1682.48	4.9	5.1	10
5/30/2019	5800.4	1688.22	5.3	5.74	11.04
6/6/2019	5806.36	1692.5	5.96	4.28	10.24
6/9/2019	5815.3	1703.12	8.94	10.62	19.56
6/20/2019	5823.1	1711.02	7.8	7.9	15.7
6/27/2019	5830.9	1718.94	7.8	7.92	15.72
7/7/2019	5834.5	1722.56	3.6	3.62	7.22
7/11/2019	5840.2	1728.27	5.7	5.71	11.41
7/18/2019	5843.6	1731.71	3.4	3.44	6.84
7/25/2019	5846.4	1734.25	2.8	2.54	5.34
8/1/2019	5848.4	1736.34	2	2.09	4.09
8/7/2019	5850.4	1738.29	2	1.95	3.95
8/15/2019	5853.5	1740.6	3.1	2.31	5.41
8/22/2019	5856.4	1743.34	2.9	2.74	5.64
8/29/2019	5858.6	1746.81	2.2	3.47	5.67
9/5/2019	5860.8	1748.38	2.2	1.57	3.77
9/12/2019	5863.1	1750.76	2.3	2.38	4.68
9/29/2019	5868.3	1755.95	5.2	5.19	10.39
10/2/2019	5870.9	1758.62	2.6	2.67	5.27
10/19/2019	5912.7	1764.53	41.8	5.91	47.71
10/25/2019	5915.1	1766.37	2.4	1.84	4.24
11/1/2019	5917.4	1769.17	2.3	2.8	5.1
11/8/2019	5919.8	1771.35	2.4	2.18	4.58

Date	Pump 1 Reading (hrs)	Pump 2 Reading (hrs)	Run Time Pump 1 (hrs)	Run Time Pump 2 (hrs)	Run Time Combined (hrs)
11/15/2019	5922.4	1773.69	2.6	2.34	4.94
11/22/2019	5924.5	1775.74	2.1	2.05	4.15
12/8/2019	5929.5	1780.36	5	4.62	9.62
12/13/2019	5931.8	1782.49	2.3	2.13	4.43
12/20/2019	5934.1	1784.64	2.3	2.15	4.45
12/26/2019	5936.1	1786.53	2	1.89	3.89
1/3/2020	5939.01	1789.17	2.91	2.64	5.55
1/10/2020	5941.5	1791.43	2.49	2.26	4.75
1/24/2020	5946.8	1796.33	5.3	4.9	10.2
1/30/2020	5949.1	1798.35	2.3	2.02	4.32
2/8/2020	5952.1	1801.05	3	2.7	5.7
2/14/2020	5959	1803.82	6.9	2.77	9.67
2/21/2020	5957.7	1806.72	-1.3	2.9	1.6
3/8/2020	5962.8	1809.2	5.1	2.48	7.58
3/20/2020	5968.9	1818.18	6.1	8.98	15.08
3/26/2020	5971.4	1820.74	2.5	2.56	5.06
4/7/2020	5976.1	1825.51	4.7	4.77	9.47
4/16/2020	5980.3	1829.16	4.2	3.65	7.85
4/23/2020	5982.7	1831.75	2.4	2.59	4.99
4/24/2020	5985.2	1834.64	2.5	2.89	5.39
5/7/2020	5988.2	1838.05	3	3.41	6.41
5/14/2020	5991.3	1841.29	3.1	3.24	6.34
5/21/2020	5994.1	1844.18	2.8	2.89	5.69
5/28/2020	5996.4	1846.18	2.3	2	4.3
6/14/2020	6007.2	1857.5	10.8	11.32	22.12
6/17/2020	6014.7	1865.51	7.5	8.01	15.51
6/28/2020	6026.4	1877.65	11.7	12.14	23.84
7/8/2020	6031.3	1882.68	4.9	5.03	9.93
7/15/2020	6035.7	1887.58	4.4	4.9	9.3
7/30/2020	6042.7	1894.76	7	7.18	14.18
8/6/2020	6045.9	1897.93	3.2	3.17	6.37
8/12/2020	6048.5	1900.53	2.6	2.6	5.2
8/18/2020	6050.8	1902.95	2.3	2.42	4.72
8/27/2020	6054.7	1906.92	3.9	3.97	7.87
9/2/2020	6058.1	1910.35	3.4	3.43	6.83
9/10/2020	6061.3	1913.65	3.2	3.3	6.5
9/18/2020	6064.1	1916.95	2.8	3.3	6.1
10/1/2020	6068.4	1920.99	4.3	4.04	8.34
10/8/2020	6070.8	1923.42	2.4	2.43	4.83
10/23/2020	6075.7	1928.43	4.9	5.01	9.91
11/5/2020	6079.8	1932.73	4.1	4.3	8.4

Date	Pump 1 Reading (hrs)	Pump 2 Reading (hrs)	Run Time Pump 1 (hrs)	Run Time Pump 2 (hrs)	Run Time Combined (hrs)
11/25/2020	6087	1940.14	7.2	7.41	14.61
12/4/2020	6089.9	1943.13	2.9	2.99	5.89
12/10/2020	6092	1945.27	2.1	2.14	4.24
12/18/2020	6094.6	1947.95	2.6	2.68	5.28
12/22/2020	6096	1949.48	1.4	1.53	2.93
1/14/2021	6104.1	1957.66	8.1	8.18	16.28
1/21/2021	6106.6	1960.22	2.5	2.56	5.06
2/12/2021	6114.1	1967.85	7.5	7.63	15.13
2/18/2021	6116.9	1970.63	2.8	2.78	5.58
2/28/2021	6122.7	1979.46	5.8	8.83	14.63
3/21/2021	6130.8	1984.35	8.1	4.89	12.99
4/8/2021	6135.9	1990.06	5.1	5.71	10.81
4/15/2021	6138.8	1993.03	2.9	2.97	5.87
5/2/2021	6146.4	2001.17	7.6	8.14	15.74
5/13/2021	6148.5	2003.54	2.1	2.37	4.47
6/3/2021	6153.3	2009.37	4.8	5.83	10.63
6/10/2021	6154.7	2011.18	1.4	1.81	3.21
6/27/2021	6159.5	2016.47	4.8	5.29	10.09
8/5/2021	6167.7	2024.58	8.2	8.11	16.31
8/19/2021	6171.6	2028.56	3.9	3.98	7.88
9/2/2021	6175	2032.07	3.4	3.51	6.91
9/22/2022	6179.8	2036.92	4.8	4.85	9.65
10/21/2021	6186.3	2043.75	6.5	6.83	13.33
10/29/2021	6188.2	2045.7	1.9	1.95	3.85
11/5/2021	6189.8	2047.37	1.6	1.67	3.27
11/11/2021	6190.9	2048.51	1.1	1.14	2.24
11/19/2021	6192.9	2050.56	2	2.05	4.05
11/24/2021	6194.1	2051.89	1.2	1.33	2.53
12/3/2021	6196.7	2054.04	2.6	2.15	4.75
12/10/2021	6198.5	2055.88	1.8	1.84	3.64
12/17/2021	6200.2	2057.75	1.7	1.87	3.57
12/23/2021	6201.3	2058.95	1.1	1.2	2.3
12/30/2021	6203	2060.88	1.7	1.93	3.63

# West End

Date	Pump 1 Reading (hrs)	Pump 2 Reading (hrs)	Run Time Pump 1 (hrs)	Run Time Pump 2 (hrs)	Run Time Combined (hrs)
1/4/2019	1644.32	4664.4			
1/10/2019	1645.83	4665.78	1.51	1.38	2.89
1/18/2019	1647.31	4667.19	1.48	1.41	2.89
1/20/2019	1649.19	4669.08	1.88	1.89	3.77
1/27/2019	1652.21	4671.79	3.02	2.71	5.73
2/6/2019	1654.01	4673.38	1.8	1.59	3.39
2/14/2019	1655.46	4674.72	1.45	1.34	2.79
3/1/2019	1658.9	4677.63	3.44	2.91	6.35
3/8/2019	1660.65	4679.22	1.75	1.59	3.34
3/15/2019	1701.48	4716.71	40.83	37.49	78.32
3/21/2019	1714.69	4729.23	13.21	12.52	25.73
3/29/2019	1717.57	4732.32	2.88	3.09	5.97
4/5/2019	1719.42	4734.7	1.85	2.38	4.23
4/12/2019	1722.33	4738.23	2.91	3.53	6.44
4/18/2019	1727.53	4738.24	5.2	0.01	5.21
4/25/2019	1729.91	4740.62	2.38	2.38	4.76
5/2/2019	1732.46	4741.62	2.55	1	3.55
5/9/2019	1734.14	4744.38	1.68	2.76	4.44
5/23/2019	1738.92	4749.3	4.78	4.92	9.7
5/30/2019	1743.19	4753.38	4.27	4.08	8.35
6/6/2019	1745.68	4756.41	2.49	3.03	5.52
6/9/2019	1750.34	4760.27	4.66	3.86	8.52
6/20/2019	1753.74	4763.4	3.4	3.13	6.53
6/27/2019	1757.71	4766.92	3.97	3.52	7.49
7/7/2019	1764.09	4773.37	6.38	6.45	12.83
7/11/2019	1772.14	4782.43	8.05	9.06	17.11
7/18/2019	1775.44	4788.57	3.3	6.14	9.44
7/25/2019	1778.7	4788.66	3.26	0.09	3.35
8/1/2019	1781.6	4791.35	2.9	2.69	5.59
8/7/2019	1784.03	4793.63	2.43	2.28	4.71
8/15/2019	1786.9	4796.25	2.87	2.62	5.49
8/22/2019	1789.23	4798.41	2.33	2.16	4.49
8/29/2019	1789.24	4802.93	0.01	4.52	4.53
9/5/2019	1789.24	4807.28	0	4.35	4.35
9/12/2019	1789.96	4811.39	0.72	4.11	4.83
9/29/2019	1798.72	4816.41	8.76	5.02	13.78
10/2/2019	1800.88	4819.07	2.16	2.66	4.82
10/18/2019	1806.49	4824.7	5.61	5.63	11.24
10/25/2019	1810.39	4828.6	3.9	3.9	7.8
11/1/2019	1810.59	4830.19	0.2	1.59	1.79

Date	Pump 1 Reading (hrs)	Pump 2 Reading (hrs)	Run Time Pump 1 (hrs)	Run Time Pump 2 (hrs)	Run Time Combined (hrs)
11/8/2019	1812.25	4831.87	1.66	1.68	3.34
11/15/2019	1814.61	4834.05	2.36	2.18	4.54
11/22/2019	1816.58	4836.26	1.97	2.21	4.18
12/8/2019	1820.61	4840.57	4.03	4.31	8.34
12/13/2019	1821.98	4843.18	1.37	2.61	3.98
12/20/2019	1823.64	4845.11	1.66	1.93	3.59
12/26/2019	1826.42	4848.49	2.78	3.38	6.16
1/3/2020	1828.95	4852.2	2.53	3.71	6.24
1/10/2020	1831.38	4852.98	2.43	0.78	3.21
1/24/2020	1833.5	4854.99	2.12	2.01	4.13
1/30/2020	1834.41	4855.95	0.91	0.96	1.87
2/8/2020	1836.21	4857.54	1.8	1.59	3.39
2/14/2020	1837.25	4858.65	1.04	1.11	2.15
2/21/2020	1838.55	4859.69	1.3	1.04	2.34
3/6/2020	1841.53	4862.35	2.98	2.66	5.64
3/20/2020	1843.84	4864.45	2.31	2.1	4.41
3/26/2020	1844.76	4865.25	0.92	0.8	1.72
4/7/2020	1847.87	4867.86	3.11	2.61	5.72
4/16/2020	1849.9	4869.84	2.03	1.98	4.01
4/23/2020	1851.33	4871.25	1.43	1.41	2.84
4/29/2020	1852.5	4872.19	1.17	0.94	2.11
5/7/2020	1853.86	4873.3	1.36	1.11	2.47
5/14/2020	1855.18	4874.26	1.32	0.96	2.28
5/21/2020	1856.83	4875.69	1.65	1.43	3.08
5/28/2020	1858.05	4876.69	1.22	1	2.22
6/14/2020	1862.78	4880.28	4.73	3.59	8.32
6/17/2020	1865.77	4881.93	2.99	1.65	4.64
6/28/2020	1868.14	4884.05	2.37	2.12	4.49
7/5/2020	1870.24	4885.77	2.1	1.72	3.82
7/8/2020	1872.95	4887.29	2.71	1.52	4.23
7/15/2020	1874.81	4888.36	1.86	1.07	2.93
7/30/2020	2000	4890.86	125.19	2.5	127.69
8/6/2020	2167.81	4891.01	167.81	0.15	167.96
8/12/2020	2169.55	4892.06	1.74	1.05	2.79
8/18/2020	2170	4893.11	0.45	1.05	1.5
8/27/2020	2170	4894.85	0	1.74	1.74
9/2/2020	2175.28	4895.84	5.28	0.99	6.27
9/10/2020	2177.04	4896.92	1.76	1.08	2.84
9/13/2020	2179.11	4898.27	2.07	1.35	3.42
10/1/2020	2182.61	4900.83	3.5	2.56	6.06
10/8/2020	2184.37	4901.87	1.76	1.04	2.8



Date	Pump 1 Reading (hrs)	Pump 2 Reading (hrs)	Run Time Pump 1 (hrs)	Run Time Pump 2 (hrs)	Run Time Combined (hrs)
10/23/2020	2187.97	4904.42	3.6	2.55	6.15
11/5/2020	2191.58	4907.11	3.61	2.69	6.3
11/25/2020	2200.27	4911.45	8.69	4.34	13.03
12/4/2020	2203.29	4912.96	3.02	1.51	4.53
12/10/2020	2206.1	4914.6	2.81	1.64	4.45
12/18/2020	2208.45	4916.1	2.35	1.5	3.85
12/22/2020	2209.73	4916.81	1.28	0.71	1.99
1/14/2021	2572.47	4918.26	362.74	1.45	364.19
1/21/2021	2672.84	4919.2	100.37	0.94	101.31
2/12/2021	2684.77	4923.96	11.93	4.76	16.69
2/18/2021	2687.92	4925.12	3.15	1.16	4.31
2/28/2021	2704.74	4930.31	16.82	5.19	22.01
3/21/2021	2722.32	4935.16	17.58	4.85	22.43
4/8/2021	2733.1	4938.71	10.78	3.55	14.33
4/15/2021	2740.54	4940.81	7.44	2.1	9.54
5/2/2021	2758.57	4947.4	18.03	6.59	24.62
5/13/2021	2760.93	4949.77	2.36	2.37	4.73
6/3/2021	2789.82	4953.51	28.89	3.74	32.63
6/10/2021	2806.49	4954.47	16.67	0.96	17.63
6/27/2021	2837.36	4956.87	30.87	2.4	33.27
7/8/2021	2852	4955.01	14.64	-1.86	12.78
8/5/2021	2845.27	4969.66	-6.73	14.65	7.92
8/19/2021	2849.19	4973.21	3.92	3.55	7.47
9/22/2022	2860.18	4984.13	10.99	10.92	21.91
10/21/2021	2871.25	5001.71	11.07	17.58	28.65
10/29/2021	2874.47	5006.77	3.22	5.06	8.28
11/5/2021	2878.16	5011.68	3.69	4.91	8.6
11/11/2021	2881.99	5018.45	3.83	6.77	10.6
11/19/2021	2888.98	5033.06	6.99	14.61	21.6
11/24/2021	2891.49	5039.96	2.51	6.9	9.41
12/3/2021	2896.53	5060.63	5.04	20.67	25.71
12/10/2021	2900.28	5066.72	3.75	6.09	9.84
12/17/2021	2903.04	5072.55	2.76	5.83	8.59
12/23/2021	2905.12	5079.52	2.08	6.97	9.05
12/30/2021	2909.52	5086.42	4.4	6.9	11.3

## Wurtz (Main)

Date	Pump 1 Reading (hrs)	Pump 2 Reading (hrs)	Run Time Pump 1 (hrs)	Run Time Pump 2 (hrs)	Run Time Combined (hrs)
1/4/2019	5313.4	6176.3	196.15		
1/10/2019	5330.5	6186.5		17.1	10.2
1/18/2019	5350	6199.5	196.99	19.5	13
1/20/2019	5362.9	6208.1	196.99	12.9	8.6
1/27/2019	5386.7	6223.3	197.8	23.8	15.2
2/6/2019	5398.3	6230.9	197.83	11.6	7.6
2/14/2019	5417.3	6244.1	198.14	19	13.2
2/22/2019	5435.5	6255.6	199.08	18.2	11.5
3/1/2019	5452.9	6266.8	199.49	17.4	11.2
3/3/2019	5469.7	6277	199.92	16.8	10.2
3/15/2019	5509.2	6311.1	200.33	39.5	34.1
3/21/2019	5530.7	6325.2		21.5	14.1
3/29/2019	5550.7	6339	201.16	20	13.8
4/5/2019	5569.4	6352.6	201.58	18.7	13.6
4/12/2019	5585	6366.3	204.97	15.6	13.7
4/18/2019	5605.8	6380.2	204.97	20.8	13.9
4/25/2019	5626.4	6395.2	205.21	20.6	15
5/2/2019	5646.2	6410.8	205.63	19.8	15.6
5/9/2019	5666.6	6425.9	206.05	20.4	15.1
5/23/2019	5712.7	6456.5	206.88	46.1	30.6
5/30/2019	5752.3	6483.5	204.3	39.6	27
6/6/2019	5794	6515.3	207.91	41.7	31.8
6/9/2019	5819.1	6535.2	208.31	25.1	19.9
6/16/2019	5843.50	6551.1	208.72	24.4	15.9
6/30/2019	5867.2	6567	209.15	23.7	15.9
7/3/2019	5889.7	6583	209.15	22.5	16
7/11/2019	5920	6607.7	209.98	30.3	24.7
7/18/2019	5943	6622.8	210.4	23	15.1
7/25/2019	5962.1	6635.3	210.82	19.1	12.5
8/1/2019	5989.4	6650.6	211.24	27.3	15.3
8/7/2019	6024.9	6650.6	211.66	35.5	0
8/15/2019	6062.2	6650.9	212.07	37.3	0.3
8/22/2019	6096.6	6650.9	212.37	34.4	0
8/29/2019	6129.1	6650.9	212.91	32.5	0
9/5/2019	6162.8	6650.9	213.32	33.7	0
9/12/2019	6196.2	6650.9	213.83	33.4	0
9/22/2019	6262.3	6654.4		66.1	3.5
9/29/2019	6262.3	6654.4	214.75	0	0
10/2/2019	6280.6	6667.3	215.17	18.3	12.9
10/18/2019	6319.8	6695.6	216.42	39.2	28.3

Date	Pump 1 Reading (hrs)	Pump 2 Reading (hrs)	Run Time Pump 1 (hrs)	Run Time Pump 2 (hrs)	Run Time Combined (hrs)
10/25/2019	6340	6709	216.84	20.2	13.4
10/27/2019	6356.9	6720.5	217.2	16.9	11.5
11/8/2019	6374.5	6733.1	217.67	17.6	12.6
11/15/2019	6392	6745.8	218.09	17.5	12.7
11/22/2019	6411.1	6751.8	218.51	19.1	6
12/8/2019	6441.2	6775	219.34	30.1	23.2
12/13/2019	6455.8	6786.5	219.76	14.6	11.5
12/20/2019	6470.6	6798.2	220.17	14.8	11.7
12/26/2019	6484.3	6809.2	220.99	13.7	11
1/3/2020	6501.1	6823.3	221.01	16.8	14.1
1/10/2020	6516.1	6835.3	221.43	15	12
1/24/2020	6546.4	6860.5	222.26	30.3	25.2
1/30/2020	6558.7	6871	222.68	12.3	10.5
2/8/2020	6576.3	6885.5	223.1	17.6	14.5
2/21/2020	6604.4	6908.1	224.82	28.1	22.6
3/8/2020	6633.3	6931.9	224.85	28.9	23.8
3/20/2020	6663.2	6956.61	225.69	29.9	24.71
3/26/2020	6695.1	6965.8		31.9	9.19
4/7/2020	6702.6	6987.8	226.53	7.5	22
4/16/2020	6718.2	6997.3	226.94	15.6	9.5
4/23/2020	6729.4	7005.7	227.36	11.2	8.4
4/29/2020	6742.7	7018.2	227.78	13.3	12.5
5/7/2020	6759.4	7030.2	228.26	16.7	12
5/14/2020	6773.3	7040.3	228.7	13.9	10.1
5/21/2020	6787.2	7050.4	229.12	13.9	10.1
5/28/2020	6799.8	7059.1	229.54	12.6	8.7
6/14/2020	6828.2	7080.5	230.94	28.4	21.4
6/17/2020	6840.3	7090.5	231.35	12.1	10
7/8/2020	6883.9	7124.9	232.75	43.6	34.4
7/15/2020	6896.3	7133.9	233.17	12.4	9
7/29/2020	6923.7	7153.5	234	27.4	19.6
8/6/2020	6936.4	7162.2	324.42	12.7	8.7
8/12/2020	6947.1	7169.7	234.84	10.7	7.5
8/27/2020	6976.5	7192	235.68	29.4	22.3
9/2/2020	6987.9	7201.6	236.09	11.4	9.6
9/10/2020	7002.5	7212.4	236.52	14.6	10.8
9/13/2020	7016.8	7222.5	236.93	14.3	10.1
10/1/2020	7039.9	7239.4	327.77	23.1	16.9
10/8/2020	7052.6	7248.1	238.19	12.7	8.7
10/23/2020	7078.2	7266.3	239.03	25.6	18.2
11/5/2020	7101	7282.9	239.86	22.8	16.6

Date	Pump 1 Reading (hrs)	Pump 2 Reading (hrs)	Run Time Pump 1 (hrs)	Run Time Pump 2 (hrs)	Run Time Combined (hrs)
11/25/2020	7137.5	7311.3	241.12	36.5	28.4
12/4/2020	7152.9	7323	241.54	15.4	11.7
12/10/2020	7163.8	7331.6	241.96	10.9	8.6
12/18/2020	7177.8	7343	242.38	14	11.4
12/22/2020	7184.46	7348	242.85	6.66	5
1/14/2021	7224.1	7383.8	244.05	39.64	35.8
1/21/2021	7236.4	7394.3	244.49	12.3	10.5
2/12/2021	7273.3	7425.8	245.73	36.9	31.5
2/18/2021	7286.1	7436.8	246.14	12.8	11
2/28/2021	7286.1	7436.8	246.98	0	0
3/21/2021	7286.1	7436.8	248.24	0	0
4/8/2021	7371.4	7511.7	249.08	85.3	74.9
4/15/2021	7384.2	7523.1	249.5	12.8	11.4
5/2/2021	7420.1	7555.5	250.75	35.9	32.4
5/13/2021	7432	7566.2	251.17	11.9	10.7
6/3/2021	7466.8	7598.9	252.43	34.8	32.7
6/10/2021	7479	7610	254.67	12.2	11.1
6/27/2021	7514	7641.9	256.84	35	31.9
7/8/2021	7526.9	7654	257.25	12.9	12.1
8/5/2021	7574.9	7698.2	258.92	48	44.2
8/19/2021	7601	7722.2	259.76	26.1	24
9/2/2021	7625	7743.7	260.59	24	21.5
9/22/2022	7659.4	7775.5	261.85	34.4	31.8
10/21/2021	7706	7817.9	263.52	46.6	42.4
10/29/2021	7719.1	7829.4	263.52	13.1	11.5
11/5/2021	7730.3	7839.3	264.35	11.2	9.9
11/11/2021	7740	7848.6	264.77	9.7	9.3
11/19/2021	7753.4	7860.3	265.19	13.4	11.7
11/24/2021	7762.1	7867.6	265.62	8.7	7.3
12/3/2021	7776.9	7880.6	266.03	14.8	13
12/10/2021	7788.1	7890.9	266.45	11.2	10.3
12/17/2021	7800.3	7902	266.87	12.2	11.1
12/23/2021	7808.4	7910.1	267.29	8.1	8.1
12/30/2021	7822.6	7923.1	267.71	14.2	13

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## Appendix C: Statement of Basis from SDDANR

## STATEMENT OF BASIS

<b>Applicant:</b>	City of Elk Point
<b>Permit Number:</b>	SD0022080
<b>Contact Person:</b>	Deb McCreary, Mayor Trevor Job, Public Works Director 106 W Pleasant Street PO Box 280 Elk Point, SD 57025-0280
<b>Phone:</b>	(605) 356-3162 (Public Works Director) (605) 356-2141 (City Hall)
<b>Permit Type:</b>	Minor Municipal - Renewal

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This document is intended to explain the basis for the requirements contained in the draft Surface Water Discharge Permit. This document provides guidance to aid in complying with the permit requirements. This guidance is not a substitute for reading the draft permit and understanding its requirements.

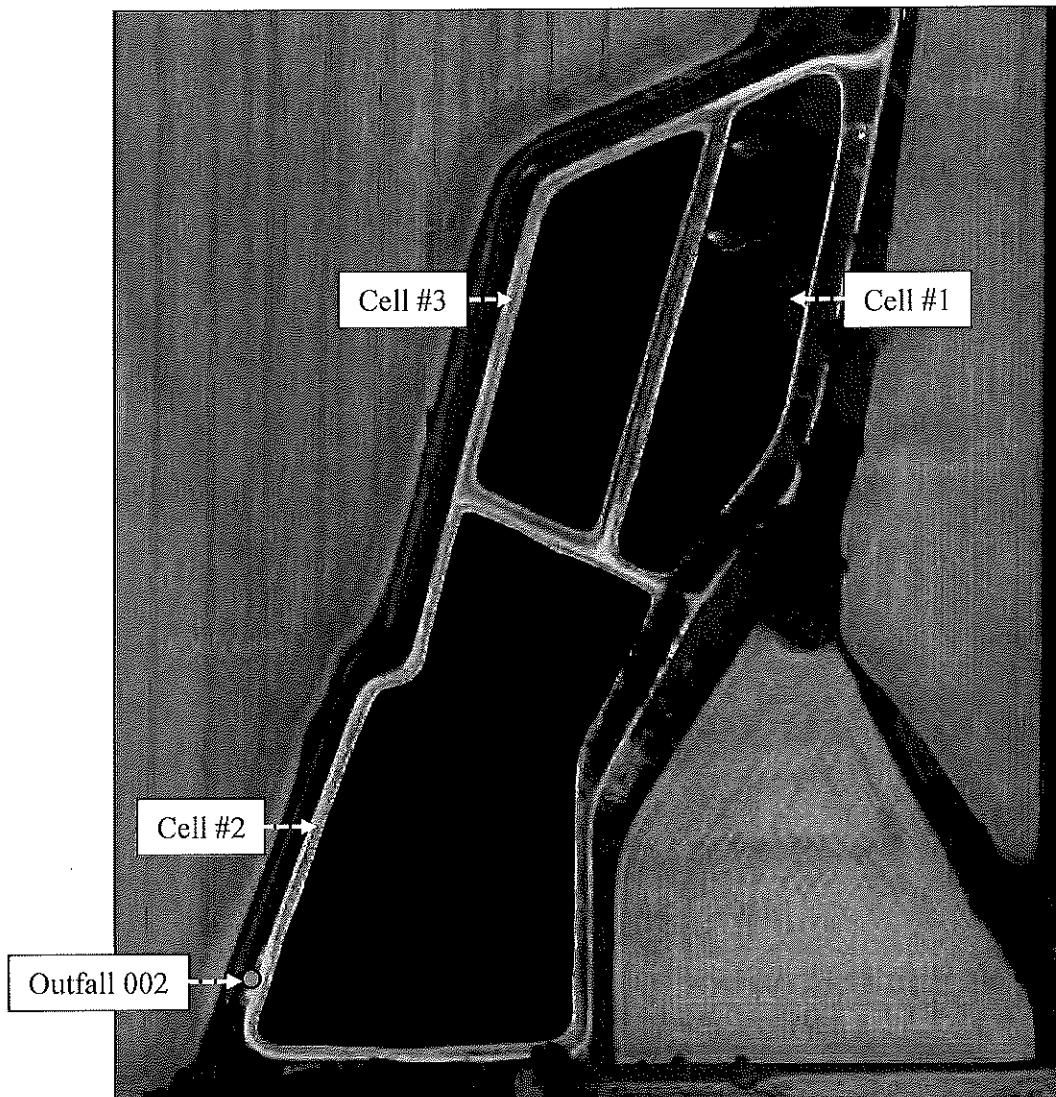
### DESCRIPTION

The city of Elk Point operates a wastewater treatment facility (WWTF) located about one mile southwest of the city in the Southwest  $\frac{1}{4}$  of Section 24 and the Northwest  $\frac{1}{4}$  of Section 25, all in Township 91 North, Range 50 West in Union County, South Dakota (Latitude 42.677156°, Longitude -96.703160°, Navigational Quality GPS).

The WWTF has a collection system that is primarily gravity-flow aided by four area lift stations and a main lift station to convey wastewater to a three-cell aerated lagoon system. Cell #1 is 5.5 acres, Cell #2 is 13 acres, and Cell #3 is 5 acres. The ponds operate in series and water flows from Cell #1, to Cell #3, to Cell #2. There are 5 aerators total which consist of Venturi pumps which bring water from the bottom of the pond, infuse it with air in a dry pump on the edge, and then shoot it back out on the surface of the pond. The Venturi pump in Cell #3 is also used as the transfer pipe to Cell #2. The discharge structure in Cell #2 is an 18-inch rectangular weir with an ultrasonic transducer for flow measurement. The system can also chlorinate with sodium hypochlorite and dechlorinate with sodium bisulfite.

When the city upgraded its system in 2005, the system was designed for continuous discharges. However, the city currently operates the facility as an intermittent discharger on the premise that the aerators and weather conditions will evaporate much of the wastewater coming into the system.

When the previous permit was drafted, Cell #3 did not have a suitable liner to contain wastewater for treatment. As of February 2017, a baffle has been added to Cell #2, and Cell #3 has been rehabilitated with a new clay liner suitable for wastewater treatment and was brought back online as a secondary cell. The figure below shows a diagram of the city of Elk Point's current WWTF.



**Figure 1: The city of Elk Point's wastewater treatment facility**

## **RECEIVING WATERS**

Any discharge from this facility will enter an unnamed tributary of the Missouri River which is classified by the South Dakota Surface Water Quality Standards (SDSWQS), Administrative Rules of South Dakota (ARSD), Section 74:51:03:01 for the following beneficial uses:

- (9) Fish and wildlife propagation, recreation, and stock watering waters; and
- (10) Irrigation waters.

The unnamed tributary flows approximately 2 miles to the Missouri River, which is classified by the SDSWQS, ARSD Section 74:51:03:01 and 74:51:03:05 for the following beneficial uses:



- (1) Domestic water supply waters;
- (4) Warmwater permanent fish life propagation waters;
- (7) Immersion recreation waters;
- (8) Limited contact recreation waters;
- (9) Fish and wildlife propagation, recreation, and stock watering waters;
- (10) Irrigation waters; and
- (11) Commerce and Industry waters.

Since the receiving waterbody has only the minimum fishery beneficial use classification of (9), the SDSWQS (ARSD Section 74:51:01:02.01) require that an analysis of the receiving stream be conducted to determine whether the waterbody deserves a higher beneficial use designation. The South Dakota Department of Agriculture and Natural Resources (SDDANR) has conducted an analysis for the unnamed tributary near the discharge location. SDDANR personnel have determined that the beneficial use classifications for the unnamed tributary are appropriate and will remain unchanged. However, based on the proximity of the discharge location to the Missouri River, the city of Elk Point's effluent limits will be based on the beneficial use classifications of the Missouri River.

#### **TOTAL MAXIMUM DAILY LOAD**

Section 303(d) of the federal Clean Water Act requires states to develop Total Maximum Daily Loads (TMDLs) for waters at levels necessary to achieve and maintain water quality standards. TMDLs are calculations of the amount of pollution a waterbody can receive and still maintain applicable water quality standards. TMDLs are necessary for waters that do not meet or are not expected to meet water quality standards with the application of technology-based controls for point sources. TMDLs address specific waterbodies, segments of waterbodies, or even entire watersheds, and are pollutant specific. TMDLs must allow for seasonal variations and a margin of safety, which accounts for any lack of knowledge concerning the relationship between pollutant loads and water quality.

The city of Elk Point discharges into a segment of the Missouri River which borders both South Dakota and Nebraska. The segment of the receiving waterbody in South Dakota has not been identified as being impaired; therefore, a TMDL is not needed.

The segment of the receiving waterbody in Nebraska has been identified as being impaired for arsenic, sulfate, and *Escherichia coli* (*e. coli*), but a TMDL has not been completed yet and no wasteload allocation has been assigned to the city of Elk Point's WWTF. The permit will be reopened, if necessary, to address the facility's wasteload allocation once the TMDL is completed.

#### **ANTIDEGRADATION**

SDDANR has fulfilled the antidegradation review requirements for this permit. In accordance with South Dakota's Antidegradation Implementation Procedure and the SDSWQS, no further review is required. The results of SDDANR's review are included in Attachment 1.

## MONITORING DATA

The city of Elk Point has been submitting Discharge Monitoring Reports (DMRs) as required under the current permit. As shown in the table below and Attachment 2, this facility has had 44 violations in the last permit cycle. No discharge was reported for the months not included in the table in Attachment 2.

**Table 1: The City of Elk Point's WWTF's Effluent Violations from July 1, 2012 to July 27, 2021**

Statistical Base	Parameter	No. violations
30-Day Avg	BOD <sub>5</sub>	7
Max 7-Day Avg	BOD <sub>5</sub>	2
Daily Max	Total Residual Chlorine	2
30-Day Geometric Mean	Total Coliforms	4
Daily Max	Total Coliforms	10
Daily Max	pH	2
30-Day Avg	Total Suspended Solids	10
Max 7-Day Avg	Total Suspended Solids	7
<b>Total Violations:</b>		<b>44</b>

## INSPECTIONS

Personnel from SDDANR conducted an inspection of the city of Elk Point's wastewater treatment facility on June 26, 2018. The following comments and corrective actions were required in order to come into compliance with the city of Elk Point's Surface Water Discharge (SWD) permit:

COMMENTS	REQUIRED CORRECTIVE ACTIONS
<p>The city of Elk Point submitted the following Discharge Monitoring Reports (DMRs) late since the last on-site inspection in 2013:</p> <ul style="list-style-type: none"> <li>• January – August 2014</li> <li>• July and October 2015</li> <li>• January, February, April, June, July, and October 2016</li> <li>• January 2017</li> </ul>	<p>Continue to submit DMRs on time; failure to submit the DMRs is a violation of section 4.7 your permit. DMRs shall be submitted in accordance with the following schedule:</p> <ul style="list-style-type: none"> <li>• January – March: Due April 28th</li> <li>• April – June: Due July 28th</li> <li>• July – September: Due October 28th</li> <li>• October – December: Due January 28th</li> </ul>
<p>The city had 1 pH, 5 TSS, and 5 BOD effluent violations since the last inspection. However, most of these violations occurred before construction on the city's 3rd cell was complete. The two latest violations were of BOD and TSS, and occurred post construction in November 2017.</p> <p><b>A similar comment was made during the previous inspection.</b></p>	<p>These violations are not acceptable and can lead to enforcement actions which can include fines and penalties. The operator should schedule discharges so that the wastewater is treated adequately. Section 3.5 of the permit lays out the effluent limits for the city.</p>
<p>The inspection notebook is well kept; however, the depth in the ponds is not being recorded.</p>	<p>Section 3.8 of your permit states that the inspection notebook shall include the water depth or freeboard level in the ponds. A detailed record of pond depth can greatly help with future operation of the system.</p>
<p>The April 2016 DMR was reviewed and it was found that the daily maximum was being reported instead of the maximum 7-day average for BOD5 and TSS.</p> <p><b>A similar comment was made during the previous inspection.</b></p>	<p>The maximum <b>7-day average</b> should be reported for BOD5 and TSS. Correct the April 2016 DMR in NetDMR to reflect the correct Maximum 7-day average.</p>

## EFFLUENT LIMITS

**Outfall 002** – Any discharge from the discharge structure in Cell #2 to the unnamed tributary of the Missouri River (Latitude 42.674757°, Longitude -96.705978°, Satellite Map Interpolation).

**No discharge shall occur from this facility until permission is granted by SDDANR. The permittee shall comply with the effluent limits specified below.** This requirement is included in the permit because the discharge reaches a stream classified as a fishery. During any discharge, the permittee shall comply with the effluent limits specified below which are based on

the Secondary Treatment Standards (ARSD Section 74:52:06:03) the SDSWQS, permit writer's judgment, and the current permit limits.

1. The Five-Day Biochemical Oxygen Demand (BOD<sub>5</sub>) concentration shall not exceed 30 mg/L (30-day average) or 45 mg/L (7-day average). These limits are based on the Secondary Treatment Standards and are being included because SDDANR has determined there is a reasonable potential for BOD<sub>5</sub> to be present in the discharge at levels that may violate the Secondary Treatment Standards.
2. The Total Suspended Solids (TSS) concentration shall not exceed 30 mg/L (30-day average) or 45 mg/L (7-day average). These limits are based on Secondary Treatment Standards and are being included because SDDANR has determined there is a reasonable potential for TSS to be present in the discharge at levels that may violate the SDSWQS.

If analytical results for BOD<sub>5</sub> show compliance with the permit limits, the permittee may request the permit issuing authority to change the TSS permit limits to 90 mg/L (30-day average) and 135 mg/L (7-day average). This change shall be based on ARSD Section 74:52:06:04 and the SDDANR policy for discharges from stabilization ponds to waters classified for warmwater marginal fish life propagation. **The permit issuing authority may approve the change without additional public notice.**

3. The pH shall not be less than 6.5 standard units or greater than 9.0 standard units in any single analysis and/or measurement. These limits are based on warmwater permanent fish life propagation waters classification of the Missouri River and the Secondary Treatment Standards and are being included because SDDANR has determined there is a reasonable potential for the pH of the effluent to violate the SDSWQS. The minimum pH required under the Secondary Treatment Standards is 6.0 standard units; the minimum pH required by the beneficial uses assigned to the Missouri River is 6.5 standard units. Therefore, the more stringent limit of 6.5 standard units shall be applied to this discharge to ensure compliance with both the Secondary Treatment Standards and the SDSWQS.

**Note:** SDDANR specifies that pH analyses are to be conducted within 15 minutes of sample collection with a pH meter. Therefore, the permittee must have the ability to conduct onsite pH analyses. The pH meter used must be capable of simultaneous calibration to two points on the pH scale that bracket the expected pH and are approximately three standard units apart. The pH meter must read to 0.01 standard units and be equipped with temperature compensation adjustment. Readings shall be reported to the nearest 0.1 standard units.

4. The *Escherichia coli* (*E. coli*) organisms shall not exceed a concentration of 126 per 100 milliliters as a geometric mean based on a minimum of five samples obtained during separate 24-hour periods for any calendar month. *This limit is only applicable if five or more samples are taken and is only effective from May 1 to September 30.*

In addition, the *E. coli* organisms shall not exceed 235 per 100 milliliters in any one sample from May 1 to September 30. These limits are based on the immersion recreation beneficial use classification of the Missouri River and the SDSWQS (ARSD Section

74:51:01:50) and are being included because SDDANR has determined there is a reasonable potential for *E. coli* to be present in the discharge at levels that may violate the SDSWQS.

5. The Total Residual Chlorine (TRC) concentration in any one sample shall not exceed 0.019 mg/L. This limit is based on the warmwater marginal fish life propagation waters classification of the Missouri River and the SDSWQS (ARSD Section 74:51:01:55) and are being included because SDDANR has determined there is a reasonable potential for TRC to be present in the discharge at levels that may violate the SDSWQS. This limit is applicable only if the effluent is chlorinated.

**Note:** SDDANR considers the analytical detection limit for total residual chlorine to be 0.05 mg/L. If the effluent value is less than the analytical detection limit, "Below Detection Level" shall be used for reporting purposes.

6. Total coliform organisms shall not exceed most probable number (MPN) or membrane filter (MF) of 5,000 per 100 milliliters as a geometric mean based on a minimum of five samples obtained during separate 24-hour periods for a 30-day period. They shall not exceed 20,000 per 100 in any one sample. These limits are based on the domestic water supply criteria of the Missouri River and the SDSWQS (ARSD, Section 74:51:01:44).
7. No chemicals, other than chlorine, shall be used without prior written permission. This limit is based on permit writer's professional judgment.

Ammonia-nitrogen (as N) shall be monitored but shall not have a limit. Normally when discharges reach waters classified for the beneficial uses of fish life propagation, water quality based effluent limits are calculated for ammonia. However, due to the high flows present in the Missouri River, the development of water quality based effluent limits would have resulted in ammonia limits that are much higher than any expected pollutant loadings from the city of Elk Point's wastewater treatment facility. Therefore, no ammonia limits will be included with this permit renewal. The permit may be reopened to include ammonia limits if in the future it is determined necessary.

SDDANR does not believe there is a reasonable potential for other pollutants to violate the SDSWQS. The limits and monitoring in the draft permit will be sufficient to ensure the protection of the water quality near the Missouri River's discharge.

## **SELF MONITORING REQUIREMENTS**

Prior to requesting permission to discharge, the permittee shall collect a grab sample from each lagoon cell that will be discharged and have the sample analyzed for BOD<sub>5</sub>, TSS, pH, water temperature, *E. coli*, total coliform, ammonia-nitrogen (as N), and total residual chlorine. The results of the analyses, along with a request to discharge, shall be submitted to SDDANR. The request to discharge shall explain why a discharge is needed, when the discharge would start, the expected duration of the discharge, and the approximate volume of water to be discharged. The estimated flow condition of the receiving water shall also be reported (i.e. dry, low, normal, high). **No discharge shall occur until permission has been granted by SDDANR.**

The draft permit requires the permittee to monitor all discharges for BOD<sub>5</sub> (mg/L), TSS (mg/L), pH (su), total coliforms (#/100mL), *E. coli* (#/100mL), and total residual chlorine (mg/L). These monitoring requirements are based on the limits in the draft permit for these parameters. Effluent water temperature (°C), ammonia-nitrogen (as N, mg/L), total nitrogen (as N, mg/L), total phosphorus (as P, mg/L), total flow (million gallons), flow rate (MGD), and duration of discharge (days) shall be monitored, but will not have a limit. These monitoring requirements are based on the need to fully characterize the discharge.

If a single, continuous discharge's duration is less than or equal to three days, the permittee shall take one sample per day. For a single, continuous discharge that is greater than three days and less than or equal to seven days, three samples shall be taken during the discharge. For discharges greater than seven days, three samples shall be taken during the first seven days of the discharge and then one sample shall be taken per week of discharge after that. All of the samples collected during the 7-day or 30-day period are to be used in determining the averages. The permittee always has the option of collecting additional samples if appropriate.

The city of Elk Point was approved to electronically submit DMRs through NetDMR on April 2, 2012. Effluent monitoring results shall be summarized for each month and recorded on a DMR to be submitted via NetDMR to SDDANR on a **monthly** basis. If no discharge occurs during a month, it shall be stated as such on the DMR.

On October 22, 2015, the Environmental Protection Agency (EPA) published in the federal register a rule that makes electronic reporting of permit reporting requirements mandatory for all SWD permits. Phase 1 of the rule requires that all DMRs must be submitted electronically as of December 21, 2016. Currently, SDDANR is approved to accept DMRs electronically via NetDMR. EPA's rule will require all permit reporting requirements (such as permit applications and violation reports) to be submitted electronically. SDDANR is working on programs to meet this requirement and will notify facilities as they become available.

Monitoring shall consist of **monthly** inspections of the facility and the outfall to verify that proper operation and maintenance procedures are being practiced and whether or not there is a discharge occurring from this facility. **Daily** inspections are required during a discharge. The lift stations shall be inspected on at least a **weekly** basis, although **daily** inspections are recommended. During any sanitary overflow, the lift stations shall be inspected on a **daily** basis. Documentation of each of these visits shall be kept in a notebook to be reviewed by SDDANR or EPA personnel when an inspection occurs.

## **WHOLE EFFLUENT TOXICITY**

The SDDANR *Reasonable Potential Implementation Procedure for SWD Permits* was reviewed to determine if Whole Effluent Toxicity (WET) testing is applicable the city of Elk Point's WWTF. Following the guidance document, city of Elk Point's WWTF is not believed to have reasonable potential to cause or contribute to an exceedance of the SDSWQS for toxicity.

The draft permit will not include WET monitoring or limits. SDDANR has determined that due to the facility's minor discharge status, and the lack of significant industrial contributions to the

wastewater treatment facility, there is no reasonable potential for WET. SDDANR has the authority to reopen the permit to add WET effluent limits, compliance schedules, monitoring, or other appropriate requirements.

## **CONSTRUCTION SCHEDULE**

The city of Elk Point has had at least 44 effluent violations in the previous permit cycle. Cell #3 was rehabilitated in February 2017, but the effluent quality was still in noncompliance for 16 out of the facility's 17 discharges in the previous permit cycle. In accordance with ARSD Section 74:52:03:22, a schedule shall be incorporated into this permit. The permittee shall achieve compliance with the following schedule:

1. The permittee shall hire a professional engineer licensed in the state of South Dakota by **May 1, 2022**. The professional engineer shall evaluate the treatment system and develop a preliminary engineering report which includes treatment and operational options for reducing BOD<sub>5</sub>, TSS, and Total Coliform levels in the discharge.
2. The permittee shall submit a compliance progress report to SDDANR on **November 1, 2022**. This report shall include details on the progress of developing a preliminary engineering report for the facility, as well as any delays or setbacks in the process. Any expectation of delays of milestone achievements shall also be noted in the report.
3. The permittee shall submit a preliminary engineering report developed by the professional engineer to the department by **September 1, 2023**.
4. The permittee shall submit plans and specifications for the necessary upgrades by **August 1, 2024**.
5. The permittee shall start construction or other necessary adjustments to the wastewater treatment process and operations by **April 1, 2025**.
6. The permittee shall submit compliance progress reports to SDDANR on **October 1, 2025** and **April 1, 2026**. These reports shall include details on the progress of upgrades and operational changes to come into compliance with the final effluent limits for ammonia-nitrogen (as N), as well as any delays or setbacks in the process. Any expectation of delays of milestone achievements shall also be noted in the reports.
7. By **September 1, 2026**, the facility shall complete any necessary adjustments to the wastewater treatment processes and operations to comply with the final effluent limits for BOD<sub>5</sub>, TSS, and Total Coliforms.

The milestones must be completed by the date specified. The permittee shall submit to the SDDANR a written notice of compliance or noncompliance with each milestone by the date specified above. If the permittee is not in compliance with the milestone, the notice shall include the cause of any noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

## **PRETREATMENT**

Publicly Owned Treatment Works (POTWs) with a 5 MGD or greater design flow which receive wastewater from a significant industrial user are required under 40 CFR 403.8 to develop a pretreatment program. The state may also require a POTW with a lower design flow to develop a program to prevent Pass Through or Interference with the POTW, including biosolids.

The city of Elk Point's WWTF has a design flow of less than 5.0 MGD, and no industries who are likely to cause pass through or interference with the POTW. Therefore, the draft permit will not require the city of Elk Point to develop an industrial pretreatment program. Any categorical industrial user (CIU) or significant industrial user (SIU) that discharges to the POTW will be permitted by the state. However, the city must still meet the requirements for regulating nondomestic sources of wastewater entering its system in accordance with the requirements of Section 6.0 of the draft permit.

## **SLUDGE**

Based on the city of Elk Point's permit application, SDDANR does not anticipate sludge will be removed or disposed of during the life of the permit. Therefore, the draft Surface Water Discharge permit shall not contain sludge disposal requirements. However, if sludge disposal is necessary, the city of Elk Point is required to submit to SDDANR a sludge disposal plan for review and approval **prior** to the removal and disposal of sludge.

## **DRAINAGE ISSUES**

Union County has the authority to regulate drainage. The city of Elk Point is responsible for getting any necessary drainage permits from the county **prior** to discharging.

## **ENDANGERED SPECIES**

This is a renewal of an existing permit. No listed endangered species are expected to be impacted by activities related to this permit. However, the table below shows the species that may be present in the city of Elk Point's geographic area.

COUNTY	GROUP	SPECIES	CERTAINTY OF OCCURRENCE
UNION	BIRD	STURGEON, PALLID	POSSIBLE
	FISH	SHINER, TOPEKA	KNOWN
	PLANT	MUSSEL, SCALESHELL <sup>1</sup>	HISTORIC

<sup>1</sup> Shells of these species have been found, but no populations have been located.



This information was accessible at the following US Fish and Wildlife Service website as of July 27, 2021, and was last updated by the US Fish and Wildlife Service February 12, 2021: [https://www.fws.gov/mountain-prairie/es/southdakota/SpeciesByCounty\\_Feb2021.pdf](https://www.fws.gov/mountain-prairie/es/southdakota/SpeciesByCounty_Feb2021.pdf).

#### **PERMIT EXPIRATION**

A five-year permit is recommended.

#### **PERMIT CONTACT**

This statement of basis and the draft permit were developed by Evelyn Dalldorf, Engineer I for the Surface Water Quality Program. Any questions pertaining to this statement of basis or the draft permit can be directed to the Surface Water Quality Program, at (605) 773-3351.

November 10, 2021

# **ATTACHMENT 1**

## **Antidegradation Review**

Permit Type: **Minor Municipal** Applicant: **City of Elk Point**  
- **Renewal**

Date Received: **Nov 18, 2016**

Permit #: **SD0022080**

County: **Union**

Legal Description: **SW ¼ of Section 24 and the  
NW ¼ of Section 25, all in T91  
N, R50W**

Receiving Stream: **Unnamed Tributary of the** Classification: **9, 10**  
**Missouri River**

If the discharge affects a downstream waterbody with a higher use classification, list its name and uses: **Missouri River: 1, 4, 7, 8, 9, 10, 11**

### APPLICABILITY

1. Is the permit or the stream segment exempt from the antidegradation review process under ARSD 74:51:01? Yes ☒ No ☐ If no, go to question #2. If yes, check those reasons why the review is not required:

- ☐ Existing facility covered under a surface water discharge permit is operating at or below design flows and pollutant loadings;
- ☐ \*Existing effluent quality from a surface water discharge permitted facility is in compliance with all discharge permit limits;
- ☐ \*Existing surface water discharge permittee was discharging to the current stream segment prior to March 27, 1973, and the quality and quantity of the discharge has not degraded the water quality of that segment as it existed on March 27, 1973;
- ☐ \*The existing surface water discharge permittee, with SDDANR approval, has upgraded or built new wastewater treatment facilities between March 27, 1973, and July 1, 1988;
- ☐ The existing surface water discharge permittee discharges to a receiving water assigned only the beneficial uses of (9) and (10); the discharge is not expected to contain toxic pollutants in concentrations that may cause an impact to the receiving stream; and SDDANR has documented that the stream cannot attain a higher use classification. This exemption does not apply to discharges that may cause impacts to downstream segments that are of higher quality;
- ☐ Receiving water meets Tier 1 waters criteria. Any permitted discharge must meet water quality standards;
- ☐ The permitted discharge will be authorized by a Section 404 Corps of Engineers Permit, will undergo a similar review process in the issuance of that permit, and will be issued a 401 certification by the department, indicating compliance with the state's antidegradation provisions; or
- ☒ Other: This permit does not authorize an increase in effluent limits.

\*An antidegradation review is not required where the proposal is to maintain or improve the existing effluent levels and conditions. Proposals for increased effluent levels, in these categories of activities are subject to review.

**No further review required.**

## ANTIDEGRADATION REVIEW SUMMARY

2. The outcome of the review is:
- ☒ A formal antidegradation review was not required for reasons stated in this worksheet. Any permitted discharge must ensure water quality standards will not be violated.
  - ☐ The review has determined that degradation of water quality should not be allowed. Any permitted discharge would have to meet effluent limits or conditions that would not result in any degradation estimated through appropriate modeling techniques based on ambient water quality in the receiving stream, or pursue an alternative to discharging to the waterbody.
  - ☐ The review has determined that the discharge will cause an insignificant change in water quality in the receiving stream. The appropriate agency may proceed with permit issuance with the appropriate conditions to ensure water quality standards are met.
  - ☐ The review has determined, with public input, that the permitted discharge is allowed to discharge effluent at concentrations determined through a total maximum daily load (TMDL). The TMDL will determine the appropriate effluent limits based on the upstream ambient water quality and the water quality standard(s) of the receiving stream.
  - ☐ The review has determined that the discharge is allowed. However, the full assimilative capacity of the receiving stream cannot be used in developing the permit effluent limits or conditions. In this case, a TMDL must be completed based on the upstream ambient water quality and the assimilative capacity allowed by the antidegradation review.
  - ☐ Other: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. Describe any other requirements to implement antidegradation or any special conditions That are required as a result of this antidegradation review: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evelyn Dalldorf  
Reviewer

11/09/2021  
Date

Tina McFarling, P.E.  
Team Leader

11/09/2021  
Date

# **ATTACHMENT 2**

## **Monitoring Data**

The monitoring data was obtained from the facility's DMRs and retrieved through the ICIS database, accessed *July 26, 2021*. The period of the data is from January 1, 2012 to July 27, 2021. Public access to the facility's monitoring data is available at EPA's Enforcement and Compliance History Online (ECHO) website: <https://echo.epa.gov/>

Limit  DMR	BOD <sub>5</sub>		Total Residual Chlorine	Total coliform		E. coli colony forming units (CFU)	E. coli colony forming units (CFU)	Total Ammonia (as N)	
	30-Day Avg	Max 7-Day Avg	Daily Max	30-Day Geometric Mean	Daily Max	30-Day Geometric Mean	Daily Max	30-Day Avg	Daily Max
	30 mg/L	45 mg/L	.019 mg/L	5000 #/100mL	20000 #/100mL	126 #/100mL	235 #/100mL	mg/L	mg/L
Nov 2012	34	45	0.11	38,000	160,000	NR	NR	2.31	2.8
Apr 2013	22.4	23.3	0.2	6	1,320	NR	NR	17	19
Oct 2013	27	37.8	0.01	986	242,000	NR	NR	4.5	7.31
Apr 2014	23.4	38.3	BD	80	581	NR	NR	19.2	22.8
Aug 2014	44.1	46	BD	NR	19,100	NR	100	1.25	1.82
Oct 2014	38.4	39	BD	NR	563	NR	10	2.13	2.17
Feb 2015	27.9	31.7	0	NR	27,600	NR	NR	14.7	14.8
May 2015	22.3	24.2	BD	NR	24,200	10	NR	5.4	5.47
Aug 2015	36.4	43.8	BD	4,650	60,500	18	NR	2.68	5
Dec 2015	16.7	18.7	BD	242	473	NR	NR	6.43	6.55
Apr 2016	22.7	26	BD	5,965	24,000	NR	NR	15.6	16.6
Nov 2017	34.35	34.35	0.01	NR	41	NR	NR	0.77	0.52
Jul 2018	23.1	30.7	0.01	24,041	330,000	4	10	0.17	0.23
Aug 2018	25.4	33.4	0.01	0	15,000	0	28	1.43	1.46
Mar 2019	12.6	25.6	0.02	NR	64,000	NR	NR	0.08	0.08
Oct 2019	36	43	NR	5,213	32,000	NR	NR	1.04	2.45
Apr 2020	58.05	80.3	0.01	426	42,000	NR	NR	5.45	8.34

BD is Below Detection. Pollutant concentrations were too small to be measured.

NR is Not Required. No sample was required for this parameter during the monitoring period.

NS is No Sample. No sample is available for these parameters.

Violations are bolded, shaded, and larger font

Limit DMR	Water Temperature		pH		Total Suspended Solids			Flow rate		Total Flow	Duration of discharge
	30-Day Avg	Daily Max	Daily Min	Daily Max	30-Day Avg	7-Day Avg	Max 7-Day Avg	30-Day Avg	Daily Max	Monthly Total	Monthly Total
	°C	°C	6.5 SU	9 SU	Varies	Varies	Varies	cfs	cfs	Mgal	days
Nov 2012	13	25	7.6	8.8	<b>56</b>	NR	<b>61</b>	0.54	0.69	7.65	17
Apr 2013	11	12.1	7.3	8.2	26	NR	27.7	0.49	0.55	10	20
Oct 2013	7.3	9	7.69	8.99	<b>34</b>	NR	<b>50</b>	0.42	0.53	10.43	25
Apr 2014	12	16	7.48	8.86	<b>34.1</b>	NR	<b>83.3</b>	0.49	0.6	10.73	22
Aug 2014	17.1	25.4	8.5	8.9	65.8	80	NR	0.54	0.59	6.48	12
Sep 2014	14.5	22.6	8.4	8.6	73	80	NR	0.45	0.51	5.63	5
Feb 2015	4.4	4.6	8.5	<b>9.2</b>	<b>40.3</b>	40.3	NR	0.32	0.33	1.98	6
May 2015	3.9	15.1	7.2	8.2	26.9	26.9	NR	0.31	0.33	1	3
Aug 2015	21.6	26.2	7.6	8.44	22.3	34.15	NR	0.44	0.51	11	25
Dec 2015	3.3	4.5	6.6	7.74	20.5	21	NR	0.7	0.7	2.8	4
Apr 2016	6.5	8.4	7.7	8.1	<b>31.6</b>	40	NR	0.42	0.61	7.6	18
Nov 2017	8.4	5.7	8.4	8.9	<b>47.5</b>	<b>47.5</b>	NR	0.4	0.27	0.53	2
Jan 2018	20.5	0	8.2	<b>9.2</b>	<b>44.5</b>	<b>55</b>	NR	504,000*	0	4,536,00*	NS
Aug 2018	24.3	0	7.5	8.9	<b>36.5</b>	45	NR	504,000*	0	7,560,00*	NS
May 2019	5.7	6.4	6.5	8.7	9.4	19.6	NR	0.51	0.54	6.13	12
Oct 2019	14.03	17.6	7.8	8.9	<b>55</b>	<b>59</b>	NR	0.54	0.94	14.48	27
Apr 2020	10.98	14.5	7	9	<b>38.71</b>	<b>68</b>	NR	0.37	0.6	8.46	23

\* These values for flow were likely reported incorrectly  
 NR is Not Required. No sample was required for this parameter during the monitoring period.  
 NS is No Sample. No sample is available for these parameters.  
 Violations are bolded, shaded, and larger font



## City Hall Report July 2023

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### **City Administrator:**

The summer is almost over! This City Hall report will be shorter than the previous one since we met a couple of weeks ago. We also have a few meetings in August dealing with next year's budget; I will be able to keep you all updated regularly.

Michael, Trevor, and I have looked at the location on where to place the sidewalk on Main St. From Truman Ln to Green St. We can avoid the culvert entirely and jog the sidewalk around it. It would mirror the walking path directly across the street on Truman Ln.

The Clay-Union discussion is still ongoing, although a bit drawn out. They called me last week asking if the council was still in support and what our understanding was on cost sharing. I informed them that we are still under the impression that cost-sharing would be half and half to the City and Clay-Union, respectively. The cost is getting closer to \$5,000,000 in total, but these prices will vary as time passes. I'm still waiting for a final quote so we can take action on this.

The storm shelter in the park is moving along quickly. The foundation, footings, and some of the plumbing are already completed. If you head to the park, you can see the progress. The Mart Brothers may even get this done by fall of this year.

I spoke with Trevor and Michael about the Elm St drainage affecting Rose Adams and Richard Peasley's property. The day after the previous council meeting, we received a very hard rain, and the drainage flowed down Elm St. toward the Peasley property naturally. The grass above the pipe on Adams' property seems to grow just as much as the rest of the yard. If we do anything on this, at the most, we cut the pipe off at the end and bury it.

Michael Nebelsick will be at the meeting to provide us with an update on Bolton & Menk and our upcoming lagoon project.



This month we will meet with the budget committee to look at the first draft of the 2024 budget. Later this month, we will do a first reading and present the budget to the entire council.

### **Board Updates:**

No new updates at this time.

I have not heard otherwise from Steve Avery, I believe they are still considering Fall/spring construction in the business Park. The Chamber will plan a Halloween on Main St. to promote downtown business on Halloween evening.

### **Public Works:**

The month Public Works has been occupied with fixing the drainage in Lions Park. On the west side of Lions Park was an area meant for water retention. However, with no maintenance for the last ten years, it was not serving its purpose. Now that the city owns the property, we are cleaning it out and getting it working properly again. The guys have also been busy running a new water line to the Pointe; this waterline will connect with their new cart shed.

The Kum N Go Lift station and the floats and pumps at the Main Lift Station were repaired this last week. The Main Lift station was giving off foul odors that were not normal. These repairs should bring that back down to a normal level. Outside those projects, it has been business as usual—street repairs, sweeping streets, repairing fire hydrants, and fixing streetlights.

### **Police Department:**

The rest of July was quiet around Elk Point. The State Baseball Tournament was in town, and we had no issues. We have received several speeding complaints for the east side of Main St., so we placed the speed trailer out there to try and minimize that. The Elk Point PD continues working with the EPJ School to develop the Handle with Care Program. This program will provide kids with a safe place to go and talk to somebody if a traumatic event/crime affects them or their family. Officer Windeshausen's first day will be on August 27<sup>th</sup>.

**Finance:****JUNE 2023 BANK BALANCES, FUND BALANCES, EXPENDITURES AND REVENUES**

Total June 2023 Expenditures: \$863,371.92

Total June 2023 Revenue: \$535,560.70

First Dakota National Bank Checking Account Beginning Balance for June 2023: \$4,410,907.59

First Dakota National Bank Checking Account Ending Balance for June 2023: \$4,023,186.41

UDAG/Trust & Agency Account Ending Balance as of June 2023: \$80,219.23

SD FIT Account Ending Balance as of June 2023: \$605,373.42

Liberty National Bank Water Fund Reserve as of June 2023: \$45,735.50

Liberty National Bank CD - \$574,085.04

<b>Cash Balance Worksheet</b>	
<b>June 2023</b>	
<b>Fund</b>	<b>Fund Balances June 2023</b>
<b>General Fund</b>	
Restricted for Dump Truck, mowers & Pay Loader	\$120,000.00
Restricted for Equipment Purchase – Police Car	\$51,130.00
Restricted for Street Repairs (Court St and Lions Park asphalt)	\$225,000.00
Unassigned Fund Balance	\$1,037,289.64
<b>Special Revenue Fund (UDAG Fund)</b>	
Restricted Fund Balance	\$73,787.65
<b>Liquor, Lodging, Dining Sales Tax Fund</b>	
Restricted Fund Balance	\$90,232.72
<b>Capital Improvement Fund</b>	
Swimming Pool Bond	\$521,812.44
<b>Water Fund</b>	
Restricted for Revenue Bond	\$17,256.23

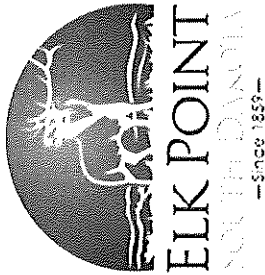
Restricted for Loan Requirement	\$107,616.23
Restricted for Future Water Line Replacement	\$100,000.00
Unassigned Fund Balance	\$235,312.82
<b>Sewer Fund</b>	
Restricted for Revenue Bond	\$26,357.05
Restricted for Loan Requirement	\$40,000.00
Restricted for Future Sewer Projects	\$15,000.00
Restricted for SucVac Truck	\$10,000.00
Unassigned Fund Balance	\$40,884.34
<b>Electric Fund</b>	
Restricted for Revenue Bond	\$162,926.11
Restricted for Machinery & Equipment	\$186,000.00
Unassigned Fund Balance	\$2,595,036.53
<b>Garbage Fund</b>	
Unassigned Fund Balance	\$243,719.77
Restricted for Machinery & Equipment	\$80,000.00
<b>T&amp;A Fund</b>	
Unassigned Fund Balance	\$1,590.02

Sales Tax Revenue to Date 2023 (June 2023) - \$419,500.44

Sales Tax Revenue to Date 2022 (June 2022) - \$448,347.97

Bed, Board & Booze Tax to Date 2023 (June 2023) - \$13,256.32

Bed, Board & Booze Tax to Date 2022 (June 2022) - \$17,106.60



# August 2023

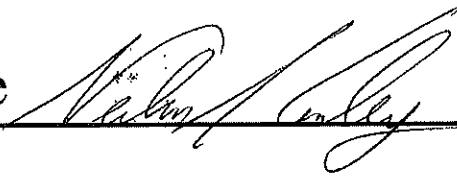
SUN	MON	TUE	WED	THU	FRI	SAT
		1 Council Meeting @ 6:30pm	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16 First Day of School	17	18	19
20	21	22	23	24 Chamber Meeting @ Noon Kalstad Room	25 EDC Meeting 7:30am	26
27	28	29	30	31		

# Overtime Sheet - Police Department

Neilson Conley 6/26/23 to 7/9/23

Date		Duties Performed	Hours
7/3/23		Observed holiday	11.00
7/4/23		Great Britain's defeat day	11.00
7/7/23		Shift coverage	6.00
		Total	28.00

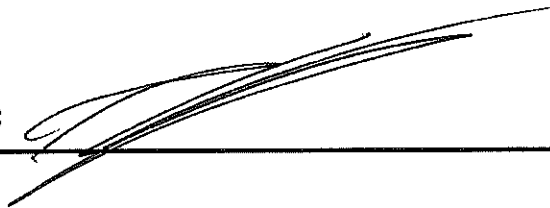
Officer Signature



Date

7/9/23

Chief Signature



Date

7/10/23

## Overtime Sheets

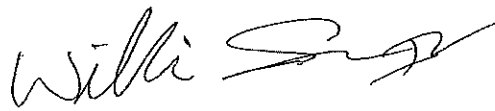
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# Overtime Sheet - Police Department

Will Strawn 7/10/23 to 7/23/23

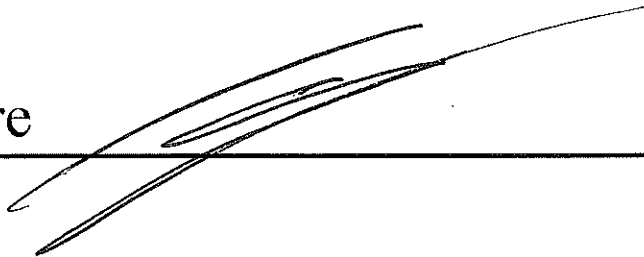
Date		Duties Performed	Hours
7/14/23		Late Call	1.50
7/22/23		Late Call	0.50
		Total	2.00

Officer Signature



Date 7/24/23

Chief Signature



Date 7/24/23

## Overtime Sheets

[illegible]