

UTILITY COMMITTEE Meeting Notice

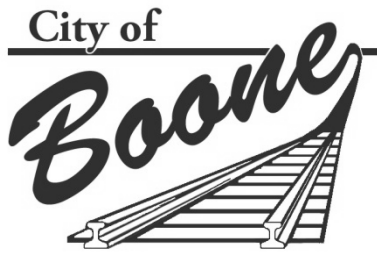
Governing Body: Utility Committee of Boone, Iowa

Date of Meeting: July 11, 2023

Time of Meeting: 4:30 P.M.

Place of Meeting: City Hall Council Chambers

1. Call Meeting to Order.
2. Approve Minutes from the June 13, 2023 Meeting.
3. Boone Laser Wash Request for Relief and Payment Plan for High Water Bill and Meter Test Results.
4. Request to Discuss Storm Drainage and Sump Pump Collection Lines on Country Club Drive. – Barbara McGregor.
5. Review/Approve Options for RAS Pumps Project for Wastewater Plant.
6. Review of US Water Monthly Report.
7. Meter Upgrade Report.
 - a. June
8. Stop Box Repair/Shut Off Report.
 - a. June
9. Other Business.
10. Adjourn.



UTILITY COMMITTEE Meeting Notice

Governing Body: Utility Committee of Boone, Iowa

Date of Meeting: June 13, 2023

Time of Meeting: 4:30 P.M.

Place of Meeting: City Hall Council Chambers

1. Call Meeting to Order.

Present: Moorman, Stines, Angstrom

Others present: Skare, Andrews, Vote, Turbes, Majors, Robbins, Ades, Karlyne Von Krog, Gary Nystrom, and Kevin Pearson.

2. Approve Minutes from the May 9, 2023 Meeting.

Stines moved; Angstrom seconded to approve the minutes of the May 9, 2023 Utility Meeting. Ayes: all those in attendance. Nays: none.

3. Discuss Water Line Leak under South Story Street. – Karlyne Von Krog.

Karlyne Von Krog addressed the Committee to discuss a \$25,000.00 water line leak that runs under South Story Street to the condominiums at Hancock and South Marshall. Von Krog stated she felt the City should share in the cost to repair the leak. The leak does not fall under the Leak Protection Program. Andrews explained the leak to the Committee. The Committee advised Von Krog that there is no precedence set for the City to help repair the leak and that the homeowner is responsible for costs from the City main to the residence.

4. Request for City Assistance on Water Issue. – Gary Nystrom and Kevin Pearson.

Gary Nystrom and Kevin Pearson requested assistance with a storm water issue at their properties located on SE Linn Street. Andrews stated his biggest concern was access to their properties to perform the work with equipment. Pearson advised that the City could access his property through his neighbor, Dr. Scott Theil's, driveway. Andrews stated the job should take one (1) or two (2) City employee's four (4) or (5) hours to complete. Staff will complete the work one time and any future issues will be addressed, at that time, if the work being done proves beneficial to the City of Boone. Stines moved; Angstrom seconded to approve City employees to complete work to address a storm water issue at Nystrom and Pearson's properties on SE Linn Street around November 2023. Ayes: all those in attendance. Nays: none.

5. Meter Upgrade Report.

- a. May

Andrews reported that in May staff finished seventeen (17) meter upgrades, one (1) meter was installed for new service, and five (5) meters were changed out due to other reasons.

6. Stop Box Repair/Shut Off Report.

a. May

Vote stated that in May, \$7,247.94 was collected during shut-offs; thirty (30) accounts qualified to be on the shut off list. Three (3) delinquent bills totaling \$726.62 were certified May 30, 2023 and if left unpaid, nine (9) bills totaling \$2,357.34 are scheduled to be certified on June 26, 2023. Vote also reported that there are one hundred twenty (120) stop boxes in need of repair.

7. Other Business.

Moorman updated the Committee on the Ultraviolet Disinfection (UV) Project.

8. Adjourn.

4:57 p.m.

Carter Hall
515-341-2085

Meter Test Results

10:20 AM

Address 921 Mamie

Serial Number 60903412 Mx# 17036172

Install Date 1-15-08

Date Tested 6-29-23

Test Performed By Waylon Andrews Carter Hall

Results

5028088.0
5,028,090.0
Low Flow 5,028,091.1 7 lcf % 100
1/4 gpm 10cf

5,028,101.2
Medium Flow 5,028,111.05 9.85cf % 98.5
20gpm 10cf

5028,111.05
High Flow 5,028,121.1 10.05cf % 100.5
1/100gpm 10cf

Notes

Cross over
4gpm 10cf

5,028,091.1
5,028,101.2 7 10.1 cf 101-%

RECEIVED
6-14-23
@ 3:16pm KM

Please put this request on the agenda for an up coming city council meeting.

On Country Club Drive if there is a rain, the water collects in puddles in front of driveways and in some areas where the surface has dropped due to it being broken. The surface of the street is rough and has a great deal of cracking. The water that stands in the street next to the curb and is unable to drain down the natural slope that is suppose to take the water away becomes stagnant and has a green slime in the bottom which is very slick. People have slipped on this slime and it makes it difficult for visitors of residents on the street to exit their transportation on the curb side. Also, insects are attracted to this stagnant water.

Residences on Country Club Drive feel it would alleviate the problem, if storm drains were installed along both sides of the street, so that water will drain to a collection area off the street. It would also be necessary to repair the area along the curb, so that the water can flow naturally to the storm drain.

If this is placed on the agenda, several that signed the request for this work to be done, have asked to attend the meeting when it's discussed.

This is a request for a storm drain be installed along both sides of the street of Country Club Drive. At present, sump pump water deposited on the street or rain water does not flow the two plus blocks required to be deposited in a collection area. The curb area has broken down in several areas and this allows the water to sit in this areas for days unless there is a lengthy dry spell.

Thank you for your consideration in this request.

Please sign your name, date and address:

John A. Smith	6-10-23	1208 Country Club Dr.
Samantha Fraskin	6-10-23	1216 Country Club Dr.
Ann & Patrick	6-10-23	1220 Country Club Dr.
Be Brown	6-10-23	1212 Country Club Dr.
Cindy Clark	6-10-23	1204 Country Club Dr.
Judith Simpson	6-10-23	1140 Country Club Dr.
Roger Winter	6-10-23	1139 C.C. Drive
Norma Anderson	6-10-23	1136 Country Club Drive
Mystique Maynes	6-10-23	1132 Country Club Dr.
O. Henke	6-10-23	1129 Country Club Dr.
Constance Cross	6-10-23	1133 Country Club Dr.
Jenny Augustin	6-10-23	1123 Country Club Dr.
Bart E. Kennedy	6/10/23	1122 Country Club Drive
Jeff & Linda Sunderson	6-10-23	1119 Country Club Dr.
Larry & Teresa Yorkitt	6-10-23	1111 Country Club Dr.
Blair	6/12/23	1213 Country Club Dr.
Ann	6/12/23	1115 Country Club Dr.
Jamie Chizek	6/12/23	1201 Country Club Dr.



Building a Better World
for All of Us®

DESIGN MEMORANDUM

TO: City of Boone

FROM: Christina Skalko, PE (Lic. IA, MN)
Perry Gjersvik, PE (Lic IA)

DATE: June 2, 2023

RE: Preliminary Design of New RAS Pumps at Boone WWTF
SEH No. 171735 14.00

The following is a summary of the proposed design for the Return Activated Sludge (RAS) Pump Replacement at the Boone Wastewater Treatment Facility.

I. Background

SEH has been hired by the City of Boone to evaluate the three existing RAS Pumps located in the building between the Final Clarifiers and the Vertical Loop Reactors (VLRs) aeration system at the WWTF. These existing pumps receive the sludge from the bottom of each (2) clarifiers and pump it back to the 2nd Basin of the VLR system to assist in the treatment process. The existing pumps are not currently providing adequate RAS pumping capacity.

II. Required RAS Pump Design Capacity

Ten States Standards for design of wastewater treatment facilities and the IDNR Design Standards suggest 50 – 150% of influent flow be returned (RAS) back to the aeration basins (VLR's) in order to provide adequate treatment. The manufacturer of the VLRs suggests that the RAS rate fall in the range of 60 – 90% of the influent flow. The Boone wastewater treatment facility's RAS rate is currently set to operate at 80% of the influent flow rate, which falls within the suggested rate range by both the manufacturer and the regulatory agency. At the currently set rate of 80% of the influent flow, the resulting design RAS pumping range (min and max) are presented below in Table 1.

Table 1: Design RAS Pumping Ranges

	MGD	gpm	Other
DNR Rated Capacity of VLR	7.0	4,860	
80% of VLR	5.6	3,890	Maximum RAS Pump Design Flow
Current ADW	1.17	820	
80% of ADW	0.94	660	Minimum RAS Pump Design Flow

Source: 2022 Capacity Evaluation Report by SEH

Engineers | Architects | Planners | Scientists

Short Elliott Hendrickson Inc., 5414 NW 88th Street, Suite 140, Johnston, IA 50131-1701

515.608.6000 | 888.908.8166 fax | sehinc.com

SEH is 100% employee-owned | Affirmative Action–Equal Opportunity Employer

III. Existing Pumping Conditions

There are currently 3 existing RAS pumps which are the dry-pit submersible type of pump. Each pump was originally designed to pump at a capacity of 2,800 gpm. It was found during the 2022 Capacity Evaluation that the existing RAS Pumps are not delivering the specified design flow of 2,800 gpm per pump to the VLR. A summary of the current flows from each RAS Pump is found below in Table 21.

Table 2: Existing RAS Pump Flow Rates

	Pump 1	Pump 2	Pump 3	Pumps 1 & 2	Pumps 1,2,3
Flow (gpm)	1,727	1,725	1,880	2,253	2,427

Source: Operator (JD) testing, 2023

As you can see from pump testing results above, each pump is currently pumping about 1,000 gpm short of the designed flow rate when operating alone. In addition, turning a 2nd pump on only provides 20% more pumping capacity, and then turning on a 3rd pump provides only 7% more flow. The current condition of the running more than one pump only providing a small percentage of flow to the pipe is expected of centrifugal pumps that share a common discharge header such as in Boone and follows typical hydraulic calculations for this situation.

It was discovered when pulling apart one of the existing pumps that the impeller was significantly worn at the edges only. These impellers have not been replaced or serviced since 2008, so this type of wear is expected. No signs of cavitation (from pumping air) were discovered and no other anomalies were discovered during the pump exploration, which implies that simple abrasion over time is the cause of the 1,000 gpm loss per pump compared to their specified design capacity of 2,800 gpm.

IV. Actual Existing Capacity Provided:

The existing RAS pumps do not provide the design pumping capacity (2,800 gpm) due to wear of the pump impellers. In addition, the existing RAS pumping capacity is well below the required RAS pumping capacity (3,800 gpm from Table 1 above) as suggested by the regulatory agency and the VLR manufacturer. For this reason, replacement of the existing RAS pumps with new pumps of adequate capacity is recommended. The following is a discussion of our evaluation of the different types of pumps and resulting pumping ranges that should be considered for the new pumps.

V. Pump Type Alternative Evaluation

The following summarizes our evaluation of various types of pumps considered to meet the above RAS flow ranges.

1. Rehabilitation of Existing Dry Pit Submersible/Centrifugal Pumps:

- a. Replacement of pump impellers, seals, etc.
- b. Flow Range: 1,350 to 2,800 gpm
 - 1) Not able to turn down pumps to the 600 gpm minimum design RAS flow
- c. VFD and motor starter replacement – none required.
- d. Hydraulic pumping capacity is not proportional to the number of each additional pump operated.
- e. Lowest Cost - \$11,500 per pump, or \$34,500 total for all three pumps rehabilitated.
- f. Does not meet the RAS pumping capacity thus not considered further

2. Replace with New Higher Capacity Dry Pit Submersible/Centrifugal Pumps:

- a. Same style as existing pumps

- b. Flow Range: 2,500 to 3,800 gpm
 - 1) Not able to turn down pumps to the 600 gpm minimum design RAS flow
- c. VFD and motor starter replacement required - 50 HP Motors
- d. Hydraulic pumping capacity is not proportional to the number of each additional pump operated
- e. Replace 2 existing pumps with larger capacity pumps and keep 1 existing pump after impeller replacement

Table 3: Anticipated Construction Costs – New Larger Submersible Dry-Pit Pumps

Item	Unit Price, Installed	Quantity	Total Cost
1. Mobilization/Bonds (7%)	\$14,000	1	\$14,000
2. Rehab Existing Pump	\$12,000	1	\$12,000
3. Dry-Pit Submersible Pumps, 3,800 gpm each	\$66,000	2	\$132,000
4. VFD's and Motor Starters/Electrical	\$17,000	2	\$34,000
5. Piping, Ball Valves, Air Release Valve	\$20,000	1	\$20,000
6. PLC Programming	\$ 5,000	1	\$5,000
Total			\$217,000

3. Replace with New Higher Capacity Rotary Lobe Pumps:

- a. Large Range of Flow. 500-3,000 gpm
 - 1) Able to turn down pumps to the 600 gpm minimum design RAS flow
- b. Lobes are more gentle on RAS than centrifugal pumps
- c. VFD and motor starter replacement required - 40 HP Motors
- d. Requires more piping/support modifications for new style of pumps
- e. Pumping capacity is proportional to number of pumps operating (results in additional capacity)
- f. Potentially lower energy consumption due to less HP
- g. Replace 2 existing pumps with larger capacity pumps and keep 1 existing pump after impeller replacement

Table 4: Anticipated Construction Costs – New Large Rotary Lobe Pumps

Item	Unit Price, Installed	Quantity	Total Cost
1. Mobilization/Bonds (7%)	\$10,000	1	\$19,000
2. Rehab Existing Pump	\$12,000	1	\$12,000
3. Rotary Lobe, 1,900 gpm each	\$ 98,000	2	\$196,000
4. VFD's and Motor Starters/Electrical	\$ 17,000	2	\$34,000
5. Piping, Ball Valves, Air Release Valve, New Supports	\$25,000	1	\$25,000
6. PLC Programming	\$ 5,000	1	\$5,000
Total			\$291,000

4. Other Pump Types Considered:

- a. Progressive Cavity Pumps: Typical length does not fit in available space and were therefore not considered further
- b. Double Disc Pumps (Penn Valley Pumps): will not achieve required flow rates and were therefore not considered further

VI. SEH Recommendations

To best accommodate the required wide RAS pumping flow range, we recommend rehabilitating one (1) existing Flygt Dry Pit centrifugal pump with a new impeller and replacing the other two existing dry pit pumps with two new 1,900 gpm Rotary Lobe pumps. The Rotary lobe pumps can be run alone or together and be ramped up and down as needed to meet the 80% flow return rate at all influent flows, including dry periods and wet periods.

The anticipated total construction cost to rehabilitate one existing dry pit pump, install two new rotary lobe pumps, make necessary piping and support modifications, add air release valves and install new motor VFD's and motor starters for a complete operating system is estimated to be \$291,000 as indicated in Table 4 above.

Keeping one of the existing dry pit centrifugal pumps allows the system to meet IDNR Firm Capacity requirements and will add additional flow to the system if one rotary lobe is out of service. The centrifugal pump will be most effective when run by itself, as it will not have to work against the rotary lobe pumps. Since the flow range of the centrifugal is limited, it can only be run by itself when the required return rates are between 1,350 gpm and 2,800 gpm.

VII. Operational Considerations

To remove air in the lines while priming the Rotary Lobe and Centrifugal pumps, a 1" ball valve should be added to the discharge line above each pump, but below the existing check valves. This ball valve can be used to manually "bleed" air out while the Clarifiers are filling. As soon as the water in the clarifier is at a higher elevation, the ball valve can be shut off, and the pumps turned on. In addition, an air release valve should be added at the high point in the discharge piping of the RAS pumps, as this piping contains a high point where air pockets may form. Although there was no evidence of cavitation in the pump there was noise noted in the Pump Inspection Report (attached) which may be from air in the lines. When emptying a clarifier, the Rotary Lobe may run dry for up to 30 minutes before internal controls would shut the pump down.

VIII. Future Capacity Considerations

If the WWTF Plant expands their VLR capacity beyond 7 MGD, the two (2) proposed Rotary Lobe pumps should be kept in place, the centrifugal pump replaced with a 3rd Rotary lobe, a 4th Rotary Lobe pump added in the RAS Pumping Room.

1. 12" Diameter Pipe Size Limitations

Based on hydraulic calculations, SEH does not recommend pumping more than 3,800 gpm through the existing 12" pipe from the RAS Pumps to the VLR, as significant velocity/scouring will occur exceeding 11 ft/sec. Therefore, if a future expansion of the VLR occurs and a higher RAS rate is needed, an additional parallel 12" diameter pipe should be installed from the RAS Pumping Room to the VLR's.

cms

Attachments:

- Rotary Lobe Pump Information
- Dry Pit Submersible Pump Information
- Existing Pump Inspection Report

c: John Roberts, USWater

ROTARY LOBE PUMP INFORMATION

Specification Sheet (1/2)



PROCESS CONDITIONS

Customer Number	113979	Abrasion	Medium
Customer Name	Iowa Pump Works - Ankeny IA	Abrasiveness (1-10)	6 - like Primary Sludge, Manure
Project	Boone, IA Sludge Pumps	Suction Condition	8.0 ft. flooded
Quote Number	12682801	Requested Capacity	1900 gpm
Quote Position Number	1	Discharge Pressure	10.0 psi
Number of Pumps	2	Discharge Head	23 ft
Pumping Temperature	100 °F	Inlet Pressure	0.0 psi
Viscosity	not Provided	Differential Pressure	10.0 psi
Density	not Provided	Actual Capacity	2019.9 gpm
Specific Gravity	not Provided	Motor HP Reserve %	10%
Liquid PH	7	Rated Power	23.8 BHP
Chloride Content	not Provided	Pump Speed	283 RPM
% Solids	1	Rated Volumetric Efficiency %	94.50%
Solid Size		Starting Torque	6478 in.lbs.
NPSH-Available	39.14 ft.	Running Torque	5309 in.lbs.
NPSH-Required	6.56 ft.	Tag Number 1	Not Specified
Medium	Sludge, No specifics		

POSITIVE DISPLACEMENT PUMP INFORMATION

Pump Part Number	VX186-736H4QD	Buffer Chamber Fluid	Titan Gear MP90 Gear Oil
Pump Model	VX186-736QD	Mechanical Seal Type	Cartridge
Material of Construction	Grey Cast Iron	Mechanical Seal Single/Double	Single Mechanical Seal
Cover Type		Seal Carrier Material	Mild Steel
Housing Segment Material	0.6025 (Grey Cast Iron)	Material Block Ring 1	304 Stainless Steel (1.4301)
Housing Segment Coating	None	Material Block Ring 2	None
Housing Segment Form	Straight	Material Mechanical Seal 1	Duronit
Radial Wear Plates	N/A	Material Mechanical Seal 2	None
Direction of Flow	Bi-Directional	Thrust Washer Material	Mild Steel
Rotary Lobe Material	NBR	Strain Bolt Material	Galvanized
Rotary Lobe Coating		Pump Shaft Top	Motor Shaft Long Ø60
Rotary Lobe Form	HiFlo®	Pump Shaft Bottom	Motor Shaft Short
Rotary Lobe # of Wings	4	Pump Length	53.9 inch
O-Ring Material	NBR	Pump Width	13.0 inch
Lip Seal Material	HNBR	Pump Weight	530 lbs
Wear Plate Material	High Wear Resistant Special Steel	Pump Shaft Diameter	85 mm
Wear Plate Coating	Galvanized	Pump Shaft Diameter (Flange)	60 mm
Oil Bottle	Standard Pressurized Oil Bottle	Pump Shaft Length	5.5 inch
Drain Hose	No	Maximum Shaft Deflection	0.0000 inch

PERFORMANCE DATA

	Pump	20 Hz	60 Hz	80 Hz	
Pump Speed	267	94	283	378	RPM
Flow Rate (new)	1900	593.6	2019.9	2733.1	gpm
Flow Rate (used)	1745.4	429.9	1866.2	2584.3	gpm
Starting Torque	6478	6478	6478	6478	in.lbs.
Running Torque	5234	4695	5309	5846	in.lbs.
Running Power	22.2	7	23.8	35	BHP
Efficiency (Volume)	94.1	83.3	94.5	95.9	%
Efficiency (Total)	49.9	49.2	49.4	45.5	%
Dynamic Pressure Reduction	0.87	0.11	0.97	1.73	psi
NPSH-r	6.56	6.56	6.56	8.11	ft

Specification Sheet (1/2)



MOTOR INFORMATION

Part Number	CPX322566T	Voltage	230/460 V
Manufacturer	Baldor	Amperage	63/32 A
Vendor Part Number	CPX322566T	Inverter Rating	Inverter Duty
Motor Material	Grey Cast Iron	Rating (Amb. + Duty)	40C AMB-CONT
General Purpose TEFC	No	Nominal Efficiency %	93.0
Class I Div I	Yes	Phase	3
Class I Div II	No	Power Factor	79
IEEE841 Compliant	No	Frequency	60 Hz
Mounting	Footed	NEMA Design	B
Enclosure	XPFC	Service Factor	1
Frame Size	324T	Shaft Diameter	2.125 inch
Conduit Box Mounting	F1	Shaft Length	5.25 inch
Poles	6	Overall Length	32.24 inch
Insulation Class	F	Width (- Conduit)	17.65 inch
HP	25 HP	Weight	619 lbs
RPM	1180 RPM		

BELT DRIVE INFORMATION

Belt Guard Part Number	GZS.019.L	Sheave Diameter Drive	6 inch
Belt Type	3VX	Sheave Diameter Pump	25 inch
Belt Length	950 inch	Shaft Center Distance Min	19.687 inch
Number of Belts	6	Shaft Center Distance Max	21.937 inch
Belt Ratio	4.17		

FLANGE CONFIGURATION

Flange Size	14.0 inch	Right Flange Type	Mild Steel Galvanized, Gooseneck
Left Flange Part Number	GPA.141	Right Flange Material	Hot Dipped Galvanized Steel
Left Flange Type	Mild Steel Galvanized, Gooseneck	Marathon Flange Part Number	N/A
Left Flange Material	Hot Dipped Galvanized Steel	Marathon Flange Material	N/A
Right Flange Part Number	GPA.141	Marathon Flange Configuration	N/A

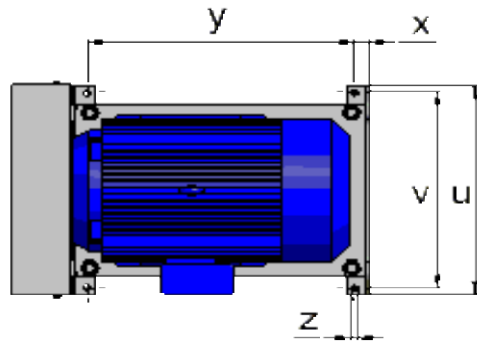
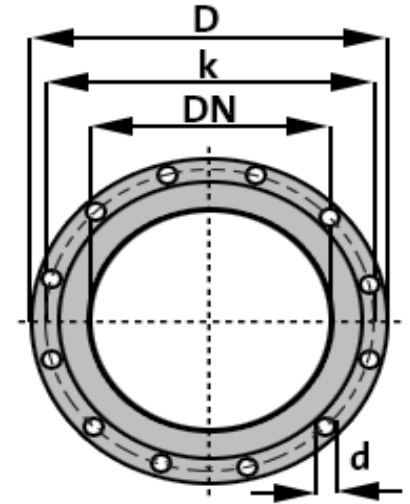
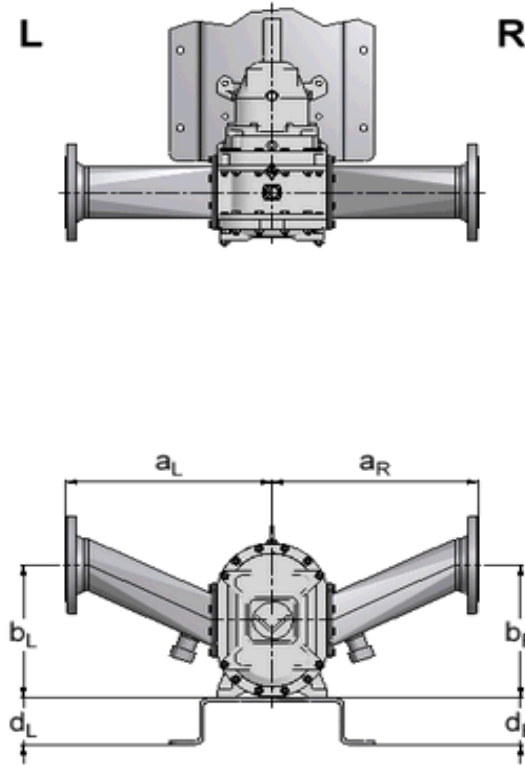
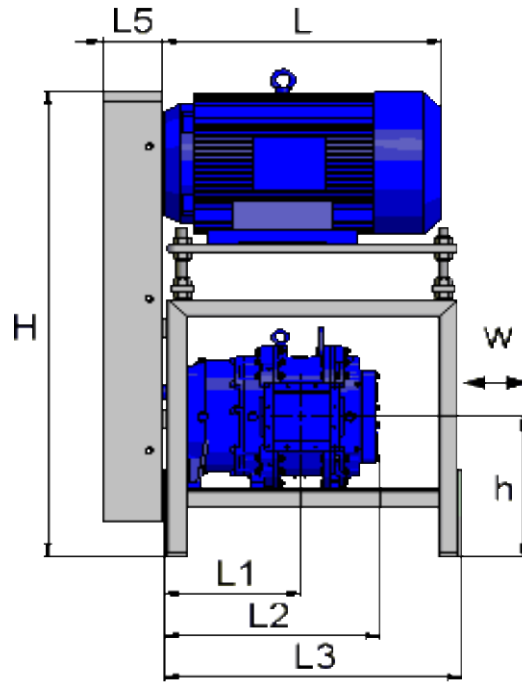
WARRANTY INFORMATION

Warranty Type	Limited Industrial Warranty
---------------	-----------------------------

Work Space minimum:
W = 20.63 inch required, 32.44 inch recommended

Recommended Anchor Bolts:
Bolt Size: 5/8" Thread UNC / Length min.2.25"

Raised-Face Flange Data Inches	
Norm	ANSI (ASA) B 16.5 "
DN	14 "
D	21 "
k	18.75 "
d	1.125 "
Hole number	12 "



	inches
L	26.99
H	48.39
L 1	27.91
L 2	48.90
L 3	51.18
L 4	0.00
L 5	5.98
h	17.40
u	22.83
v	21.26
x	1.57
y	48.03
y2	0.00
y3	0.00
z	0.71

Scale: NTS
dimensions shown in inches
dimensional changes reserved
general tolerances acc to ANSI Std.
created with CAPSlogik

Flange Left L	
a _L	26.30
b _L	17.99
c _L	0.00
d _L	7.28
GPA.141	

Flange Right R	
a _R	26.30
b _R	17.99
c _R	0.00
d _R	7.28
GPA.141	

Vogelsang Data	
Customer	Iowa Pump Works - Ankeny IA
Quote ID	12682801
Sales Order No	
Position No	1

Pump Type	VX186-736QD
Motor	CPX322566T
Drive Type	Belt Drive with Footed Motor
Guard Type	Mild Steel, painted
Base Plate	GBO.187.T3.TV
Total Weight	2459 lbs

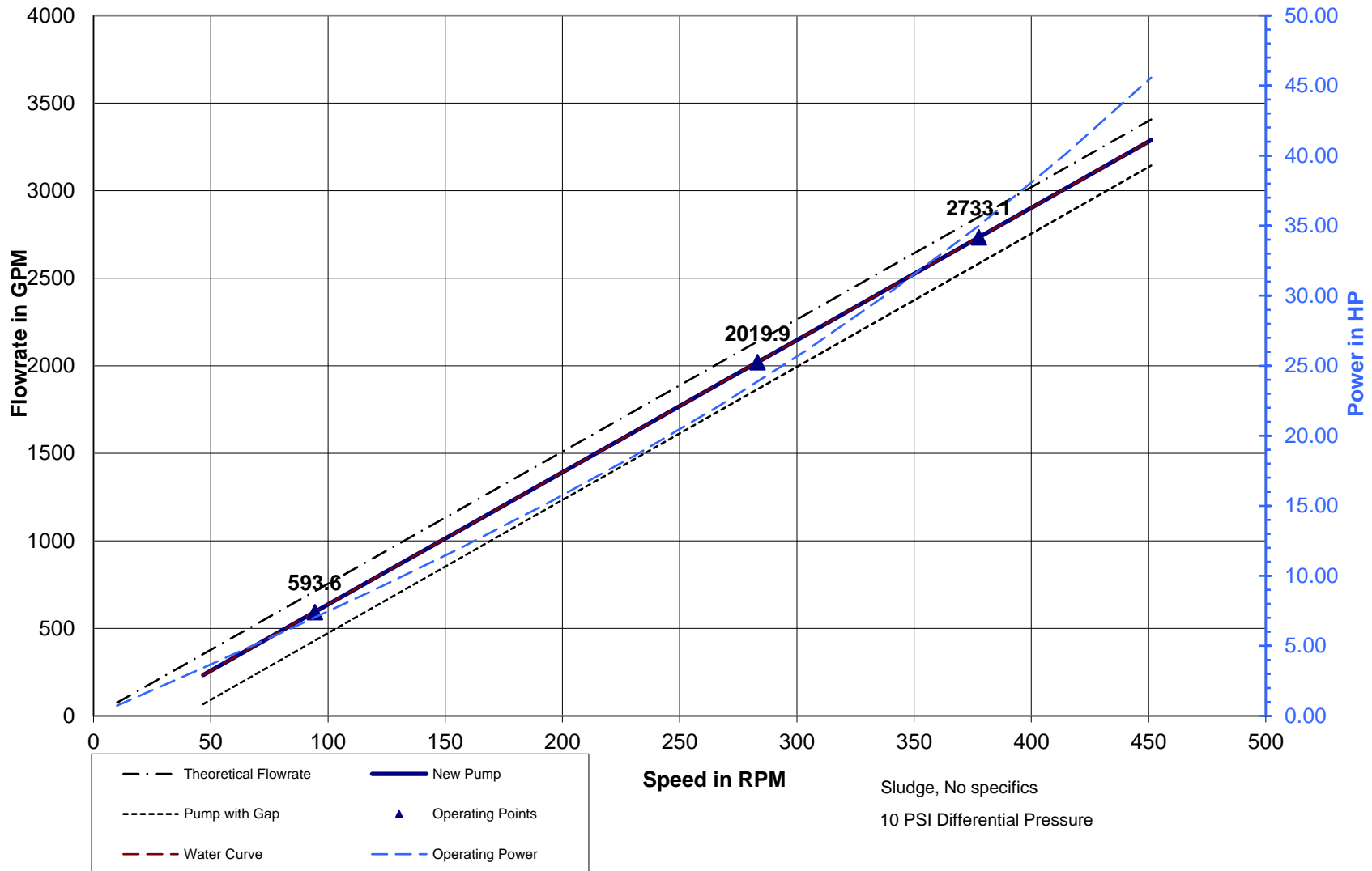
Vogelsang USA - 7966 SR 44, Ravenna, OH 44266		
Phone: 330-296-3820 Email: sales@vogelsangusa.com		
www.vogelsangusa.com		
Date	5/2/2023	© copyright



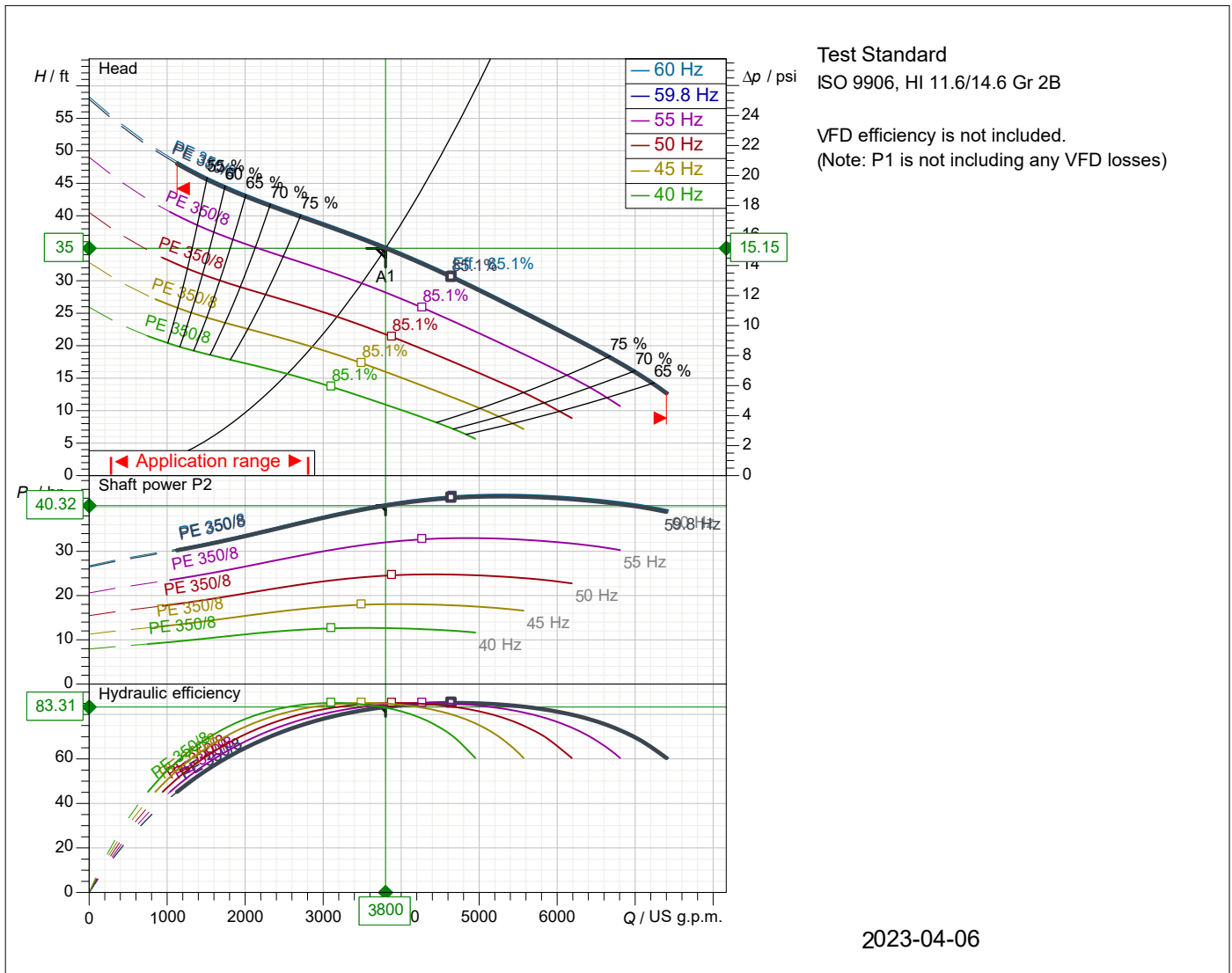


Flowrate / Speed at Constant Pressure VX186-736QD

Project: Boone, IA Sludge Pumps
Quote No.: 12682801
NPSH-R: 6.56 ft.



XFP305J-CB2 60 HZ



Operating data specification Flow 3800 US g.p.m. Efficiency 83.3 % NPSH 14.1 ft Temperature 68 °F No. of pumps 1		Power input 44.1 hp Head 35 ft Shaft power 40.3 hp Fluid Wastewater Nature of system Single head pump	
Pump data Type XFP305J-CB2 60 HZ Series XFP PE4-PE7 N° of vanes 2 Free passage 4.72 x 6.3 inch Discharge flange DN300 Moment of inertia 24.4 lb ft²		Make SULZER Impeller Contrablock Plus impeller Impeller size 15 3/8 inch Suction flange DN300 Type of installation Dry well vertical installation	
Motor data Rated voltage 480 V Rated power P2 46.9 hp Number of poles 8 Power factor 0.75 Starting current 295 A Starting torque 477 lbf ft Insulation class H(140)		Frequency 60 Hz Nominal Speed 878 rpm Efficiency 91.4 % Rated current 61.4 A Rated torque 281 lbf ft Degree of protection IP 68 No. starts per hour 15	

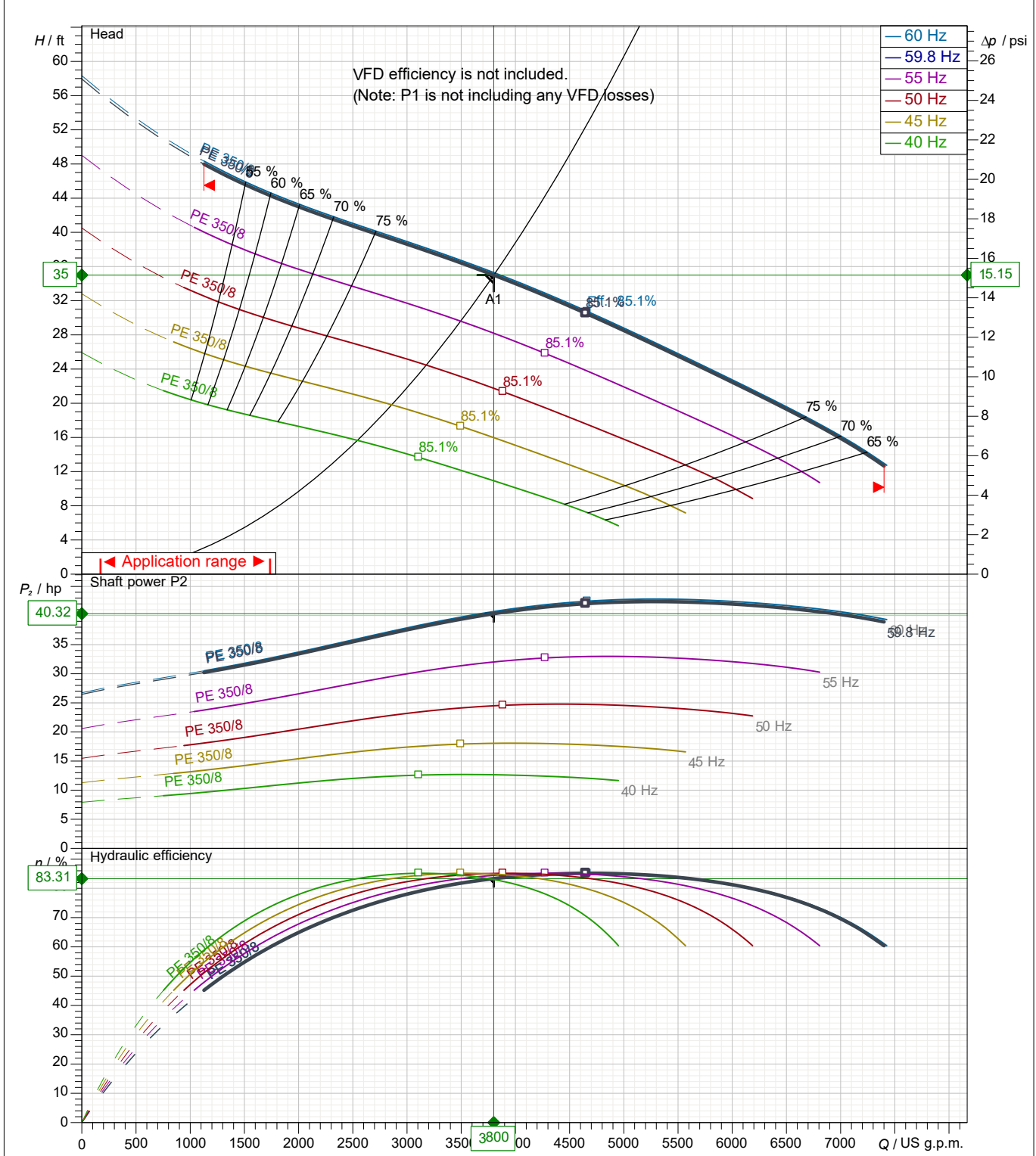
Curve number
Reference curve XFP305J-CB2 60 HZ

Pump performance curves

XFP305J-CB2 60 HZ



				Discharge DN300	Frequency 60 Hz
Density 62.31 lb/ft ³	Viscosity 1.077E-5 ft ² /s	Test Standard ISO 9906, HI 11.6/14.6 Gr 2B		Rated speed 878 rpm	Date 2023-04-06
Flow 3800 US g.p.m.	Head 35 ft	Shaft power 40.3 hp	Power input 44.1 hp	Rated power P2 46.9 hp	Hyd. efficiency 83.3 %
					NPSH 14.1 ft



Impeller size 15 3/8 inch	N° of vanes 2	Impeller Contrablock Plus impeller	Solid size 4.72 x 6.3 inch	Revision
------------------------------	------------------	---------------------------------------	-------------------------------	----------

Sulzer reserves the right to change any data and dimensions without prior notice and can not be held responsible for the use of information contained in this software.

Spaix® 5-2022.4 - 2022/11/30 (Build 120), 64 bit
data version March 23.2

Frequency
60 Hz

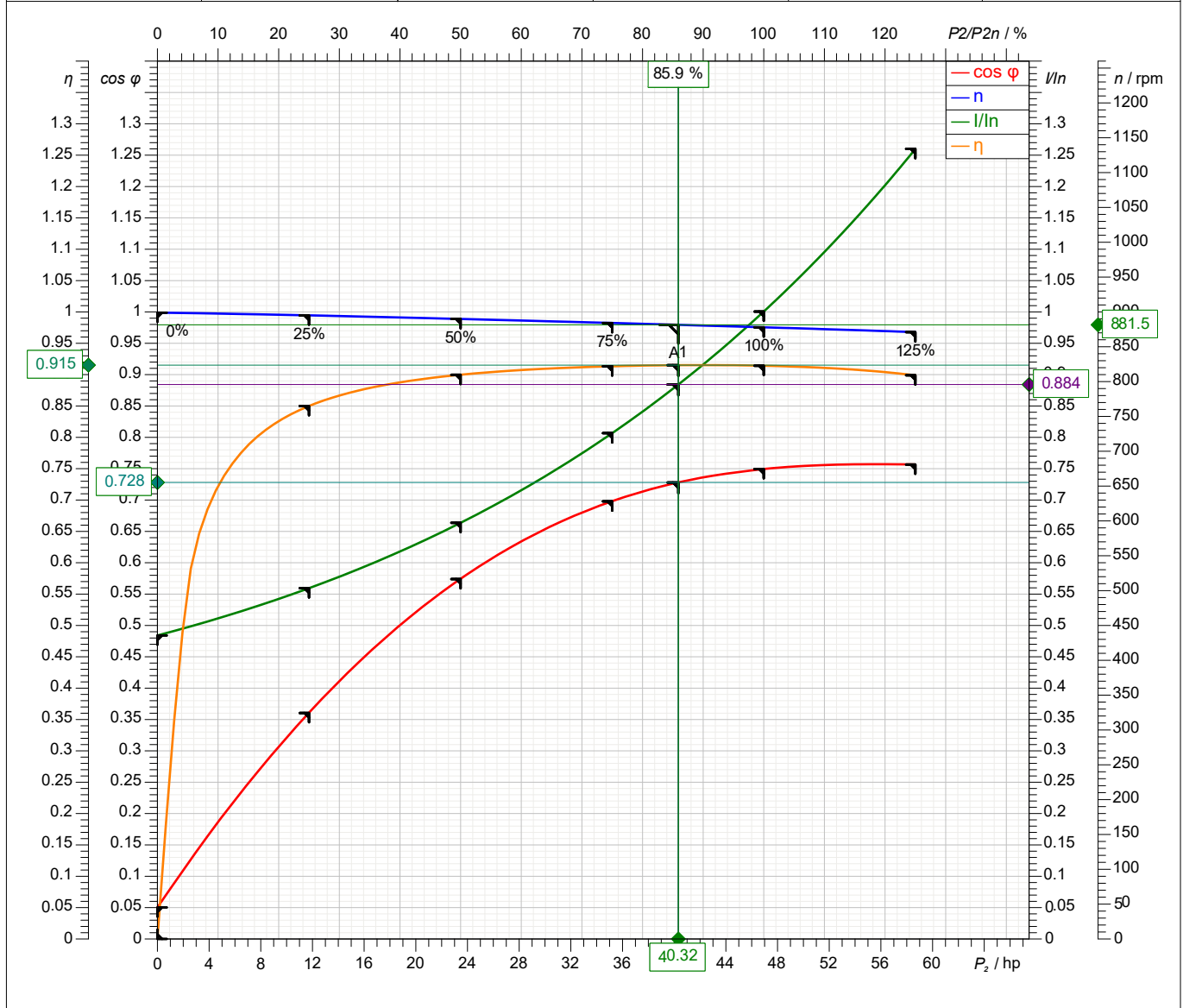
PE4B

Motor performance curve

PE 350/8



Rated power 46.9 hp	Service factor 1.15	Nominal Speed 878 rpm	Number of poles 8	Rated voltage 480 V	Date 2023-04-06
------------------------	------------------------	--------------------------	----------------------	------------------------	--------------------



Symbol	No load	25 %	50 %	75 %	100 %	125 %
P2/ hp	0	11.73	23.47	35.2	46.94	58.67
P1/ hp	1.667	13.81	26.08	38.54	51.34	65.26
n / rpm	899	895.1	889.9	884.1	877.9	871
cos	0.05031	0.3605	0.5741	0.6979	0.7495	0.7567
I / A	29.72	34.35	40.75	49.53	61.44	77.36
s / %	0.1124	0.5489	1.124	1.765	2.451	3.221
M / lbf ft	0	68.86	138.5	209.1	280.8	353.8
/ %	0	85	89.98	91.33	91.42	89.9

Tolerance according to VDE 0530 T1 12.84 for rated power

Starting current 295 A	Starting torque 477 lbf ft	Moment of inertia 14.5 lb ft ²	No. starts per hour 15
---------------------------	-------------------------------	--	---------------------------

ELECTRIC PUMP EXISTING PUMP INSPECTION REPORT



City of Boone, IA WWTP

Pump #3 Flygt 3153.181-5438 SN S0850715 IMP 622 15HP 1155RPM Dual Voltage 10" discharge 12" influent.

Pump is closest to influent line Valves all work as they should be

Dry pit submersible application.

Pump 3 has the most hours on it @ 48035 hours/ Pump 1 @ 43957 Pump 2 @44362

Lead 1-2 1.1/ lead 1-3 1.1/ lead 2-3 1.1 readings in OHM's (motor is Balanced Perfectly)

Lead 1 OL / Lead 2 OL / Lead 3 OL all leads tested to ground reading in OHM's (motor tests perfectly no readings to ground on any of the 3 leads.

Mini- Cas reading

Pulled inspection plug it was dry and clean indicating that the lower and upper seal are still intact and working as they should be.

Impeller shows some wear I would say were near 50% worn out has some small chunks missing and veining on the leading edge. The pump runs smooth start up GPM is 2100 after it runs for roughly 30 seconds it slows down to about 1800-1900 GPM on the curve with a good impeller and wear ring these pumps are supposed to produce 2500GPM @ 15.5TDH. It is my opinion that the wear on the impeller would be the cause of the lower GPM numbers. I suggest installing a new wet end kit including a new impeller and wear plate. All of the pumps run smoothly there is some noise but I believe that is being caused by the system and is not a pump issue. Worn out impellers could be causing some of this. There is a lot of debris that passes through these pumps. The amount of hours on them is impressive for the amount of wear I'm seeing on these. I do believe we could achieve our target 2500GPM with new wet end kits we could try adjusting the impellers which I would've done onsite but all I had was my tool bag I needed an Impact JD didn't have one onsite either. We would see increased flow with an adjustment probably not 2500GPM but could achieve 2000 at least I would think.

May 2023

City of Boone, Iowa

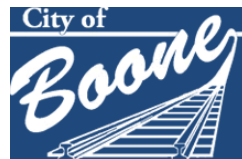
Water & Wastewater Treatment Facilities , Storage, and Lift Stations
Monthly Operations & Maintenance Report

Prepared by:



1406 Central Avenue
Fort Dodge, IA 50501
(515) 269-2338

Prepared For:



923 8th Street
Boone, IA 50036
(515) 432-4211

May 2023

City of Boone
William J. Skare, City Administrator
923 8th Street
Boone, IA 50036

RE: May Monthly Water & Wastewater Operations Report

Dear Mr. Skare:

In accordance with contract requirements, we are pleased to provide the following monthly report for May 2023. Below is a list of the significant events that occurred during the month:

SUBMITTED TO: William J. Skare, City Administrator
Utility Committee and City Council, City of Boone
Aaron Voss, U.S. Water Services Corporation

We appreciate the opportunity to be of service to the City of Boone. We are available to discuss this report, or any other aspect of our operations, at your convenience. Should you have any questions or need additional information, please do not hesitate to contact us.

Sincerely,

J.D. Roberts, Water Environment Plant Supervisor
USW Utility Group
(712) 259-0805
JRoberts@USWaterCorp.net

Dave Moore, Water Works Supervisor
USW Utility Group
(515) 230-3130
DMoore@USWaterCorp.net

WATER

Water Treatment Facility

This month the drinking water treatment facility.....

Finished Water Monthly Flows and Hardness			
		May-2022	May-2023
Water	Units		
Average Daily Pumped	gallons	1,759,000	1,883,000
Maximum Daily Pumped	gallons	2,110,000	2,551,000
Minimum Daily Pumped	gallons	1,468,000	1,462,000
Hardness			
Hardness - Avg Raw	grains	20.9	17.4
Hardness - Avg Finish	grains	10.4	9.9
Iron mg/l			
Avg Raw	mg/L	.01	.01
Avg Finish	mg/L	.01	.01
Fluoride mg/l			
Avg Raw Fl.	mg/L	.62	.39
Avg Finish Fl.	mg/L	.75	.68

Water Storage

During the month of May.....All three water towers were in operation as well as the 2 million gallon reservoir and 100,000 gallon contact basin for a total of 3,700,000 gallons of storage.

Maintenance Report

During the month of May the major maintenance items that were completed include, switched slakers, cleaned and serviced slaker #1, replaced the dehumidifier filters, verified turbidity meters weekly, performed calibration on turbidity meters, mowed grass and performed grounds maintenance at the water plant, water towers and pump station, filled low spots in both yards and trimmed and cut down

trees, repaired the John Deere X729 lawn tractor, helped install security cameras at the Pump Station, rebuilt the solenoid valves on High Service Pump #1, cleaned and serviced Solenoid valves on High Service Pumps, assisted NAI Electric with replacement of fuses on High Service Pump #3, changed oil in blower #1, repaired very badly plugged drain line for slaker room and sprayed weeds at water towers and plant.

Current & Planned Projects

During the month of June staff is scheduled to replace Dehumidifier filters, replace ClariCone sample lines and perform tree cutting and trimming.

Regulatory Reports

See attached documents.

WASTEWATER

Wastewater Treatment Facility

Wastewater Treatment Facility Flows			
	Plant Influent	Plant Effluent	Units
Total	67.10	•	MGD
Average per day	2.36	•	MGD
Minimum	1.64	•	MGD
Maximum	3.42	•	MGD

Parameter	Wastewater Influent & Effluent Quality							
	Influent		Effluent					
	Daily Ave MG/L	Daily Ave LBS/Day	Daily Max	Permit Daily MG/L Limit	7 Day Max Ave	Permit 7 Day Max Limit	30 Day Average	Permit 30 Day Ave
BOD ₅	129.31	1891.0	•	•	•	•	•	•
CBOD ₅	•	•	2.4 LBS/Day	•	1.59 LBS/Day	711 LBS/Day	1.74 LBS/Day	444 LBS/Day
Suspended solids	442.2	5981.4	11	•	11	45.0	3.5	533
Nitrogen Ammonia	•	•	9.87 MG/L	5.0 MG/L	8.03 MG/L	•	4.85 MG/L	1.5 MG/L
Nitrate Nitrogen	38.42	544.4	15.1 LBS/Day	942.33 LBS/Day	15.1 LBS/Day	•	12.64 LBS/Day	576 LBS/Day
Dissolved Oxygen	•	•	6.49	•	6.02	•	5.172	>5.0
pH	•	•	7.69	6.5 to 9 STD Units	7.595	•	•	•

ND= No Detection

• = No limit set

Solids Inventory

During the month of May we hauled 14.9 dry tons to the bunker. We pressed 5 days for the month of May 2023.

Lift Stations

The Lift Station on Airport Road has had problems with Pump 1 not pumping correctly for a while. It is unable to prime or maintain a prime when the pump is off. Electric Pump is aware of the issue and will look at it when they do their service agreement.

We have a Service Agreement with Electric Pump, scheduled for July 6, 2023.

Maintenance Report

May 8, 2023, Safety switch went bad on press, had to order a new one, is not installed yet.

5-17-23 had to replace battery backup for the internet and network equipment.

5-24-23 Cleaned up the check valve for Pump 1 in the scum pit manhole.

Current & Planned Projects

Capital Improvement Projects that are approved and awaiting contractor's schedule:

- RAS pumps (Currently in Engineering Phase)

- Tuck Pointing

- Sand Blasting on North Clarifier

Health & Safety

There were no safety violations to report for the current month.

The subjects of the monthly safety training were Safety Awareness: Attention to Detail. All staff reviewed, understood, and acknowledged the material.

Regulatory Reports

See attached documents.

**SURFACE WATER/INFLUENCED GROUNDWATER MONTHLY OPERATION REPORT
IOWA DNR WATER SUPPLY SECTION**

Basic Information

S/EP #: 1

SYSTEM NAME: Boone Water Works

PWSID #: 0819033

MONTH: May

YEAR: 2023

DAY	Pumpage		Operating Hours	Fluoride		Chlorine Residual								CT	Cl ₂ Used
	Raw in 1,000s Gallons Per Day	To System in 1,000s Gallons Per Day		Quantity Used in lbs.	Finished Water (mg/L)	Source/Entry Point (S/EP)				Distribution					
			Number of Hours of Treatment Plant Operation Per Day			Number of Tests Taken*	Specify Free (F) or Total (T)	Lowest Measured Residual (mg/L)	Continuous Hours Less Than 0.3 mg/L Free or 1.5 mg/L Total	Number of Tests Taken	Lowest Measured Residual Free (mg/L)	Number With Undetected Residual	Highest Measured Residual Free (mg/L)	Ratio of CT Obtained to CT Required	Chlorine in lbs.
1	2,112	1,785	20.50	16	0.76	"C"	(F)	2.01	0	6	1.00	0	1.23	9.3	55
2	2,011	1,770	19.50	17	0.72	"C"	(F)	2.03	0	1	1.10	0	1.10	9.4	31
3	2,268	1,888	21.75	25	0.75	"C"	(F)	2.06	0	1	1.10	0	1.10	8.2	57
4	2,252	1,974	22.00	14	0.76	"C"	(F)	2.02	0	1	1.12	0	1.12	8.5	59
5	2,081	1,684	20.25	20	0.68	"C"	(F)	2.01	0	1	1.04	0	1.04	8.7	51
6	1,679	1,462	16.50	9	0.65	"C"	(F)	1.98	0	1	1.07	0	1.07	10.7	42
7	2,042	1,688	20.00	8	0.72	"C"	(F)	1.94	0	1	1.05	0	1.05	8.6	56
8	2,155	1,858	21.00	10	0.66	"C"	(F)	1.94	0	5	1.01	0	1.38	7.7	58
9	2,162	1,892	20.00	20	0.49	"C"	(F)	1.95	0	1	1.03	0	1.03	8.1	61
10	2,024	1,762	18.75	7	0.61	"C"	(F)	2.03	0	1	1.03	0	1.03	8.7	54
11	2,140	1,825	19.75	19	0.52	"C"	(F)	2.02	0	1	1.01	0	1.01	8.6	57
12	1,874	1,563	17.25	23	0.54	"C"	(F)	1.96	0	1	1.02	0	1.02	9.6	51
13	1,832	1,581	16.75	18	0.67	"C"	(F)	1.90	0	1	0.93	0	0.93	9.9	48
14	1,949	1,651	17.75	9	0.66	"C"	(F)	1.83	0	1	0.96	0	0.96	8.7	50
15	1,848	1,616	16.45	12	0.56	"C"	(F)	1.90	0	1	0.95	0	0.95	9.6	47
16	1,897	1,539	18.50	9	0.61	"C"	(F)	1.83	0	7	0.92	0	1.56	9.6	50
17	1,975	1,600	19.50	14	0.51	"C"	(F)	1.85	0	1	0.88	0	0.88	10.1	57
18	2,256	1,903	21.75	17	0.63	"C"	(F)	1.92	0	1	0.81	0	0.81	9.5	62
19	2,063	1,740	20.25	20	0.63	"C"	(F)	2.01	0	1	0.83	0	0.83	10.9	57
20	2,219	1,886	21.75	14	0.79	"C"	(F)	2.03	0	1	0.85	0	0.85	10.2	62
21	2,315	1,969	21.25	23	0.71	"C"	(F)	2.04	0	1	0.88	0	0.88	9.7	63
22	2,583	2,225	24.00	20	0.62	"C"	(F)	2.08	0	1	0.90	0	0.90	8.9	74
23	2,722	2,223	24.00	23	0.52	"C"	(F)	2.05	0	1	0.93	0	0.93	8.6	66
24	2,681	2,314	24.00	36	0.61	"C"	(F)	2.01	0	1	0.94	0	0.94	8.5	74
25	2,702	2,112	24.00	39	0.79	"C"	(F)	2.03	0	1	0.98	0	0.98	8.8	80
26	2,455	2,122	22.25	32	1.10	"C"	(F)	2.07	0	1	0.96	0	0.96	9.9	69
27	2,535	2,157	22.75	22	0.79	"C"	(F)	2.10	0	1	0.98	0	0.98	9.7	70
28	2,460	2,082	22.25	33	0.62	"C"	(F)	2.08	0	1	0.95	0	0.95	9.9	66
29	2,653	2,551	24.00	44	0.65	"C"	(F)	2.06	0	1	0.99	0	0.99	9.3	70
30	2,707	2,100	22.50	48	0.84	"C"	(F)	2.09	0	1	0.98	0	0.98	9.2	73
31	2,206	1,839	20.00	35	0.88	"C"	(F)	2.04	0	1	1.12	0	1.12	10.9	59
Total	68,858	58,361	640.95	656						46		0			1,829
Avg	2,221	1,883	20.75	21	0.68										59
Max	2,722	2,551	24.00	48	1.10				0				1.56		80
Min	1,679	1,462	16.45	7	0.49			1.83			0.81			7.7	31

*If continuous monitoring of chlorine is provided, enter "C" in the space provided.

I certify that I am familiar with the information contained in this report and that the information is true, complete, and accurate.

DRC Operator's or Designee's Signature: David Moore
Certificate #: 4108 Grade: IV Date: 6/5/2023

**SURFACE WATER/INFLUENCED GROUNDWATER MONTHLY OPERATION REPORT
IOWA DNR WATER SUPPLY SECTION**

Turbidity Data Page 1 of 1

S/EP: #1

SYSTEM NAME: Boone Water Works

PWSID #: 0819033

MONTH: May

YEAR: 2023

DAY	Finished Water			Filter Effluent														Raw Water Turbidity (Highest Daily Reading NTU)		
	Number of Readings Taken **	Number of Readings >0.3 NTU	Highest Daily Reading (NTU)	#1			#2			#3			#4							
				Highest Consecutive Results >0.5 NTU Anytime After 4 Hours From Start Up or Backwash	Daily Highest (NTU)	# of Consec Results >1.0 NTU	Highest Consecutive Results >0.5 NTU Anytime After 4 Hours From Start Up or Backwash	Daily Highest (NTU)	# of Consec Results >1.0 NTU	Highest Consecutive Results >0.5 NTU Anytime After 4 Hours From Start Up or Backwash	Daily Highest (NTU)	# of Consec Results >1.0 NTU	Highest Consecutive Results >0.5 NTU Anytime After 4 Hours From Start Up or Backwash	Daily Highest (NTU)	# of Consec Results >1.0 NTU					
1	20	0	.02	.02	.02	.02	0	.02	.02	.03	0	.02	.02	.03	0	.02	.02	.02	0	0.07
2	21	0	.03	.03	.03	.05	0	.02	.02	.13	0	.02	.02	.03	0	.02	.02	.03	0	0.07
3	20	0	.02	.02	.02	.02	0	.02	.02	.02	0	.03	.02	.03	0	.02	.02	.02	0	0.07
4	21	0	.02	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.03	0	.02	.02	.02	0	0.07
5	22	0	.02	.02	.03	.04	0	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.02	0	0.08
6	20	0	.02	.03	.03	.03	0	.03	.02	.03	0	.02	.02	.02	0	.02	.02	.02	0	0.09
7	16	0	.02	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.03	0	.02	.02	.02	0	0.07
8	20	0	.01	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.02	0	0.06
9	21	0	.02	.03	.03	.03	0	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.02	0	0.07
10	20	0	.02	.03	.03	.03	0	.02	.02	.02	0	.03	.03	.03	0	.02	.02	.02	0	0.07
11	19	0	.02	.02	.02	.02	0	.02	.02	.03	0	.03	.03	.03	0	.02	.02	.02	0	0.07
12	20	0	.02	.02	.02	.02	0	.02	.02	.02	0	.03	.03	.03	0	.02	.02	.02	0	0.07
13	18	0	.02	.03	.02	.03	0	.03	.03	.03	0	.03	.03	.03	0	.02	.02	.02	0	0.08
14	16	0	.02	.02	.02	.03	0	.02	.02	.03	0	.03	.03	.03	0	.02	.02	.02	0	0.08
15	18	0	.02	.02	.02	.02	0	.02	.02	.02	0	.03	.03	.04	0	.01	.01	.03	0	0.07
16	17	0	.02	.02	.02	.02	0	.02	.02	.02	0	.03	.03	.03	0	.02	.02	.04	0	0.07
17	19	0	.02	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.03	0	.02	.02	.02	0	0.08
18	20	0	.03	.02	.02	.03	0	.02	.02	.18	0	.02	.02	.03	0	.02	.02	.02	0	0.07
19	22	0	.02	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.03	0	.02	.02	.02	0	0.06
20	20	0	.02	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.03	0	.02	.02	.02	0	0.06
21	22	0	.02	.03	.03	.04	0	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.02	0	0.06
22	21	0	.02	.04	.04	.05	0	.02	.02	.03	0	.02	.02	.02	0	.02	.02	.02	0	0.08
23	24	0	.02	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.02	0	.01	.01	.01	0	0.06
24	24	0	.02	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.02	0	0.06
25	24	0	.02	.02	.02	.03	0	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.02	0	0.06
26	24	0	.02	.03	.03	.03	0	.02	.02	.03	0	.02	.02	.02	0	.02	.02	.02	0	0.07
27	23	0	.02	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.02	0	0.07
28	23	0	.02	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.02	0	.02	.02	.02	0	0.07
29	22	0	.02	.02	.02	.02	0	.02	.02	.02	0	.02	.01	.02	0	.02	.02	.02	0	0.08
30	24	0	.01	.03	.03	.03	0	.01	.01	.01	0	.01	.01	.02	0	.01	.02	.02	0	0.07
31	22	0	.03	.02	.02	.02	0	.02	.02	.02	0	.01	.01	.02	0	.01	.01	.02	0	0.07
Total	643	0					0				0				0				0	
Avg																				0.07
Max			.03			.05				.18				.04				.04		0.08
Min																				0.06

**If continuous monitoring of turbidity is provided, measurements must be recorded at equal time intervals at least once every four hours or hourly for plants w/pop. >100,000.

I certify that I am familiar with the information contained in this report and that the information is true, complete, and accurate.

DRC Operator's or Designee's Signature: David Moore
 Certificate #: 4108 Grade: IV Date: 6/5/2023

**SURFACE WATER/INFLUENCED GROUNDWATER MONTHLY OPERATION REPORT
IOWA DNR WATER SUPPLY**

Basic Information

S/EP: #1

System Name: _____ PWSID #: 819033 Month: May Year: 2023

Day	Operating Hours	Pumpage		Fluoride		Raw Turbidity Highest Daily Reading (NTU)	Settled Turbidity (individual sedimentation basin)							
		Number of hours the plant operated per day	Raw in 1,000s Gallons Per Day	To System in 1,000s Gallons Per Day	Quantity Used in lbs. or gal. (circle one)		Finished Water (mg/L)	Highest Daily Reading Sed 1 (NTU)	Highest Daily Reading Sed 2 (NTU)	Highest Daily Reading Sed 3 (NTU)				
1	20.50	2112.00	1785.00	16.00	0.76	0.07	1.58							
2	19.50	2011.00	1770.00	17.00	0.72	0.07	1.49							
3	21.75	2268.00	1888.00	25.00	0.75	0.07	0.57							
4	22.00	2252.00	1974.00	14.00	0.76	0.07	1.04							
5	20.25	2081.00	1684.00	20.00	0.68	0.08	1.01							
6	16.50	1679.00	1462.00	9.00	0.65	0.09	1.30							
7	20.00	2042.00	1688.00	8.00	0.72	0.07	1.02							
8	21.00	2155.00	1858.00	10.00	0.66	0.06	1.20							
9	20.00	2162.00	1892.00	20.00	0.49	0.07	0.97							
10	18.75	2024.00	1762.00	7.00	0.61	0.07	0.77							
11	19.75	2140.00	1825.00	19.00	0.52	0.07	0.85							
12	17.25	1874.00	1563.00	23.00	0.54	0.07	0.90							
13	16.75	1832.00	1581.00	18.00	0.67	0.08	0.88							
14	17.75	1949.00	1651.00	9.00	0.66	0.08	1.57							
15	16.45	1848.00	1616.00	12.00	0.56	0.07	1.13							
16	18.50	1897.00	1539.00	9.00	0.61	0.07	1.01							
17	19.50	1975.00	1600.00	14.00	0.51	0.08	0.71							
18	21.75	2256.00	1903.00	17.00	0.63	0.07	0.53							
19	20.25	2063.00	1740.00	20.00	0.63	0.06	2.20							
20	21.75	2219.00	1886.00	14.00	0.79	0.06	0.71							
21	21.25	2315.00	1969.00	23.00	0.71	0.06	0.41							
22	24.00	2583.00	2225.00	20.00	0.62	0.08	1.76							
23	24.00	2722.00	2223.00	23.00	0.52	0.06	0.75							
24	24.00	2681.00	2314.00	36.00	0.61	0.06	1.11							
25	24.00	2702.00	2112.00	39.00	0.79	0.06	1.25							
26	22.25	2455.00	2122.00	32.00	1.10	0.07	0.92							
27	22.75	2535.00	2157.00	22.00	0.79	0.07	1.32							
28	22.25	2460.00	2082.00	33.00	0.62	0.07	1.21							
29	24.00	2653.00	2551.00	44.00	0.65	0.08	1.36							
30	22.50	2707.00	2100.00	48.00	0.84	0.07	1.78							
31	20.00	2206.00	1839.00	35.00	0.88	0.07	0.79							
Total	641	68,858	58,361	656							0	0	0	0
Avg	20.68	2,221	1,883	21.16	0.68	0.07	1.10	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Max	24.00	2,722	2,551	48.00	1.10	0.09	2.20	0.0	0.0	0.00	0.00	0.00	0.00	0.00
Min	16.45	1,679	1,462	7.00	0.49	0.06	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00

I certify that I am familiar with the information contained in this report and that the information is true, complete, and accurate.

DRC Operator or Designee's Signature: David Moore

Certificate #: 4108 Grade: IV Date: 6/5/2023

**IOWA DEPARTMENT OF NATURAL RESOURCES
NPDS REPORTING SYSTEM - DISCHARGE MONITORING REPORT
FACILITY INFORMATION**

This form is valid 2/1/2023 to 7/31/2024

Facility Name: BOONE CITY OF STP

Permit #: 0819001

Month/Year:

5	2023
---	------

Outfall #(s): 001 - DISCHARGE FROM AN ACTIVATED SLUDGE WASTEWATER TREATMENT FACILITY.

Operator Name:

John Roberts

Certification #:

10924

Phone #:

7122590808

Lab Cert. #:

156

Comments:

--

*Include Comments longer than 1000 characters in email

Signature:

John Roberts

<p>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 known violations.</p>
--

Permit # 0819001
 Facility Name: BOONE CITY OF STP

Monthly Operation Report
 IOWA DEPARTMENT OF NATURAL RESOURCES
 NPDS - Operation Permit System
 INFLUENT Data

Outfall #: 001
 Month/Year: 5-2023

Mon. Point Parameter	RAW WASTE													
	FLOW	BOD5		TSS		TOT-N		TKN		PHOS		TEMP	PH	
Units	MGD	MG/L	LBS/DAY	MG/L	LBS/DAY	MG/L	LBS/DAY	MG/L	LBS/DAY	MG/L	LBS/DAY	FAHRENHEIT	STD UNITS	
Frequency	7/WEEK OR DAILY	2 TIMES PER WEEK	2 TIMES PER WEEK	2 TIMES PER WEEK	2 TIMES PER WEEK	1 TIME PER WEEK	1 TIME PER WEEK	1 EVERY MONTH	1 EVERY MONTH	1 TIME PER WEEK	1 TIME PER WEEK	2 TIMES PER WEEK	2 TIMES PER WEEK	
Start Date														
End Date	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	
No Discharge LOG														
Day: 1	1.901			97	1537.87098								56	7.7
2	1.834					21.89	334.8198084	21	321.20676	3.7	56.593572		58	7.1
3	1.755	137	2005.2279	92	1346.5764								58	7.9
4	1.789												58	7.8
5	2.229	147	2732.70942										56	7.7
6	2.263													
7	2.655													
8	2.655			142	3144.2634								58	7.6
9	2.386					15.9	316.397916	14	278.58936	2.4	47.758176		58	7.7
10	2.245	108	2022.1164	107	2003.3931								58	7.7
11	2.279												62	7.7
12	2.531	139	2934.08706											
13	3.415													
14	2.848													
15	2.71			89	2011.5246								56	7.5
16	2.607					17.2	373.968936	15	326.1357	2.2	47.833236		58	7.7
17	2.389	97	1932.65322	67	1334.92542								59	7.7
18	2.273												60	7.6
19	2.207	52	957.13176										59	7.7
20	2.131													
21	2.137													
22	2.065			130	2238.873								58	7.6
23	1.947					20.62	334.8271476	20	324.7596	4.6	74.694708		60	7.6
24	1.887	86	1353.43188	99	1558.02042								60	7.6
25	1.792												58	7.6
26	1.739	130	1885.4238										60	7.7
27	1.708													
28	1.648													
29	1.648												58	7.6
30	1.784			134	1993.72704								62	7.6
31	1.661	267	3560.15418	176	2438.08224								60	7.6
Total	67.098	1153	19382.93562	1133	19607.2566	75.61	1360.013808	70	1250.69142	12.9	226.879692		1290	168
Monthly Avg.	2.164451613	128.11111111	2153.659513	113.3	1960.72566	18.9025	340.003452	17.5	312.672855	3.225	56.719923		58.63636364	7.636363636
Daily Max.	3.415	257	3560.15418	176	3144.2634	21.89	373.968936	21	326.1357	4.6	74.694708		62	7.9
Daily Min.	1.648	52	957.13176	67	1334.92542	15.9	316.397916	14	278.58936	2.2	47.758176		56	7.1
Max. 7/Avg.	2.622714286	142	2478.10173	124.5	2573.82825	21.89	373.968936	21	326.1357	4.6	74.694708		59.2	7.675

Permit # 0819001
 Facility Name: BOONE CITY OF STP

Monthly Operation Report
 IOWA DEPARTMENT OF NATURAL RESOURCES
 NPDS - Operation Permit System
 EFFLUENT Data

Outfall #: 001
 Month/Year: 5-2023

Mon. Point Parameter Units	EFFLUENT PRIOR TO DISINFECTION												EFFLUENT AFTER DISINFECTION					
	CBOD5		TSS		NH3-N		NO3-N		TOT-N		PHOS		TOX CER	TOX PM	TEMP	DQ	PH	E. COLI
	MGL	LBS/DAY	MGL	LBS/DAY	MGL	LBS/DAY	MGL	LBS/DAY	MGL	LBS/DAY	MGL	LBS/DAY	NO TOXICITY	NO TOXICITY	FAHRENHEIT	MGL	STD UNITS	#/100 ML
Frequency	2 TIMES PER WEEK	2 TIMES PER WEEK	2 TIMES PER WEEK	2 TIMES PER WEEK	2 TIMES PER WEEK	2 TIMES PER WEEK	1 EVERY MONTH	1 TIME PER WEEK	1 TIME PER WEEK	1 TIME PER WEEK	1 TIME PER WEEK	1 EVERY 12 MONTHS	1 EVERY 12 MONTHS	2 TIMES PER WEEK	2 TIMES PER WEEK	5 TIMES PER WEEK	GEO. MEAN 1/3 MONTHS	
Start Date	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	Permit Duration	8/1/2023
End Date																		7/31/2024
No Discharge LOG																		06 - NOT REQ / MP
Day: 1			9	142.68906											54	9.5	7.9	
2					0.1	1.529556			13.2	201.901392		2.2	33.650232		54	9.6	7.9	
3	3	43.9101		6	87.8202										56	9.3	8	
4															56	9.6	8	
5	3	55.76958													56	9.2	7.9	
6																		
7																		
8			7	154.9989											56	7.4	7.6	
9					0.1	1.989924	169	9.5	189.04278		2	39.79848			56	9.4	8	
10					0.1	1.87233									56	9.3	8	
11	3	56.1699		5	93.6165										60	9.1	7.9	
12																		
13	3	63.32562																
14																		
15			10	226.014											54	9.5	7.9	
16					0.1	2.174238			11.94	259.6040172		1.8	39.136284		56	9.4	8	
17	3	59.77278		5	99.6213										60	9.2	7.9	
18															58	9.2	7.9	
19	3	55.21914													59	9.5	8	
20																		
21																		
22			5	86.1105											60	9.8	7.9	
23					0.1	1.623798			12.1	196.479558		2.6	42.218748		60	9.4	8	
24	3	47.21274		5	78.6879										60	9.5	8	
25															60	9.6	8	
26	3	43.50978													62	9.4	8	
27																		
28																		
29															62	7.9	7.9	
30			4	59.51424											62	8	8	
31	3	41.55822		3	41.55822										62	9	7.9	
Total	27	466.44786		59	1070.63082		1.81	31.309446	169	46.74	847.0277472		8.6	154.803744		1281	201.8	174.6
Monthly Avg.	3	51.82754		5.9	107.063082		0.100555556	1.739441367	169	11.685	211.7569368		2.15	38.700936		58.22727273	9.172727273	7.936363636
Daily Max.	3	63.32562		10	226.014		0.11	2.174238	169	13.2	259.6040172		2.6	42.218748		62	9.8	8
Daily Min.	3	41.55822		3	41.55822		0.1	1.385274	169	9.5	189.04278		1.8	33.650232		54	7.4	7.6
Max. 7/Avg.	3	59.74776		7.5	162.81765		0.1025	2.01596565	169	13.2	259.6040172		2.6	42.218748		60.4	9.54	7.98



1406 Central Avenue
Fort Dodge, Iowa 50501
515-269-2338

www.USWUtilityGroup.com

UPGRADE PROGRAM		June 2023				
DATE	ADDRESS	ORIG INSTALL	Note	Low	Med	High
6/1/2023	909 w 4th	2/24/2009				
6/1/2023	1140 Aldrich	New Service				
6/2/2023	126 Tama	4/30/1999				
6/5/2023	511 W 9th	5/11/2021				
6/5/2023	1315 Benton	9/12/2014				
6/6/2023	320 W 4th H	11/15/07				
6/6/2023	320 W 4th L	11/15/07				
6/7/2023	1905 Lakewood Dr	3/26/2013				
6/12/2023	2228 Boone	5/13/2019				
6/14/2023	827 S Jackson H	10/29/2003				
6/14/2023	827 S Jackson L	8/13/2004				
6/14/2023	1522 3rd	12/7/1999				
6/15/2023	501 S Linn	3/19/1999				
6/20/2023	1021 W 7th	New Service				
6/20/2023	204 S Story H	3/10/1999				
6/20/2023	204 S Story L	07/10/00				
6/20/2023	560 Linden Ln	11/10/1999				
6/22/2023	409 College	10/20/2011				
6/23/2023	1208 Aldrich	1/7/1999				
6/26/2023	711 Story St	7/23/2021				
6/28/2023	1522 Crawford	7/13/2009				
6/28/2023	115 Destiny Dr	New Service				
6/29/2023	921 Mamie	01/15/08				
Locates						
5/1 to 6/1		218				

Curb Box Repair Update for 07/11/2023 – as of 07/03/2023

\$6907.31 was collected during shut offs. 29 accounts qualified to be on the list.

121 stop boxes are in need of repair. Waylon has ordered 9 of these to be repaired.

5 delinquent bills in the amount of \$1585.38 certified on June 27th. If left unpaid, 12 delinquent bills totaling \$2976.12 are scheduled to certify on July 31st.

Lesli Vote
Utility Billing Supervisor